333
M764A

Montana State Library
3 0864 1004 7972 7

MONTANA

1909

PUBLISHED BY THE STATE BUREAU OF AGRICULTURE, LABOR, INDUSTRY AND PUBLICITY
HELENA, MONTANA

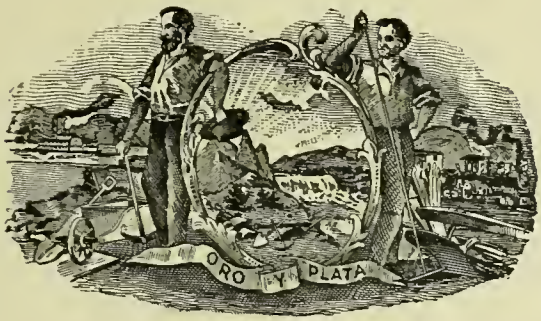
WOOL PRODUCTION
1908
42,717,747 POUNDS

A MONTANA WATER POWER.

338
M76f2

MONTANA

132702



Issued by the Department of Publicity of the Bureau of Agriculture, Labor and Industry of the State of Montana.

J. H. HALL, Commissioner

HELENA, MONTANA,
1909.

Independent Publishing Co.,
State Printers.

The State Capitol.

FOREWORD.

This little book is published under authority of the act passed at the last session of the Legislative Assembly which increased the duties of the Commissioner of Agriculture, Labor and Industry and directed him to collect data "upon the agricultural, commercial, mining, labor or other industrial resources of the State or upon the educational and social interests or sanitary conditions of the people of the State," and to provide for the publication and publicity of reports containing such statistics.

It is the first publication of the publicity branch of the Bureau; and the aim has been to compile from such data as has been collected a report giving a general idea of the resources of Montana and suggesting the advantages which it possesses and the opportunities which it offers to the homeseeker.

The subject is too vast to be fully covered in any one book; and this little work, hurriedly compiled to meet a pressing demand, is not as complete as could be desired. Within its covers, however, will be found many facts which will prove of interest to citizens of Montana as well as to non-residents. They indicate the greatness of the State in area, in achievements and in possibilities; but any examination of the resources of Montana must lead to the conclusion that it is yet in the infancy of its development.

This little book will serve to answer many of the thousands of inquiries that are coming to this Bureau, and will be the cause, it is hoped, of inducing many who read it to visit the State and examine for themselves the advantages it offers. Montana invites inspection; and needs to make no extravagant claims to establish the fact that it offers to the homeseeker and the capitalist opportunities which are unequalled elsewhere in the United States.

In collecting data and illustrations for this work, the Commissioner has been placed under obligations by so many men who are working to give publicity to the advantages of Montana that he lacks space to name them here. He hopes, however, that each one will consider himself personally thanked for his assistance. The descriptions of the various counties have been edited from accounts furnished by residents having special knowledge of local conditions.

Appended hereto is a list of the commercial clubs and organizations in the various counties which are doing very effective publicity work, and which are ready to supply reliable information as to the opportunities offered in their sections to any one who will call upon—or correspond with—them.

This Bureau is, in a measure, a clearing-house of information for the entire State. Its services are placed at the disposal of any one who wishes information concerning Montana and it will be glad to answer inquiries on the subject.

J. H. HALL,
Commissioner of Agriculture, Labor, Industry and Publicity.
Helena, Montana.

SECRETARIES OF COMMERCIAL CLUBS AND ASSOCIATIONS.

Beaverhead—W. F. Cashmore, Secretary Beaverhead Commercial Club, Dillon.

Broadwater—Julius Berg, Secretary Commercial Club, Townsend.

Carbon—C. C. Bowlen, Secretary Board of Trade, Red Lodge.

Cascade—W. A. Remington, Secretary Board of Commerce, Great Falls.
R. H. Bemis, Secretary Commercial Club, Belt.

Chouteau—B. B. Weldy, Secretary Commercial Club, Chester.
W. K. Harber, Secretary Commercial Club, Fort Benton.
W. E. French, Secretary Milk River Valley Industrial Association, Harlem.
W. B. Pyper, Secretary Havre Industrial Association, Havre.
J. C. Duff, Secretary Commercial Club, Chinook.

Custer—J. B. Collins, Secretary Chamber of Commerce, Miles City.
C. W. Grandey, Secretary Commercial Club, Terry.

Dawson—F. P. Leiper, Secretary Dawson County Club, Glendive.

Deer Lodge—F. W. Harrison, Secretary Chamber of Commerce, Anaconda.

Fergus—J. M. Croft, Secretary Commercial Club, Lewistown.
Gordon O. Shaefer, Secretary Commercial Club, Moore.
Secretary Commercial Club, Judith Gap.

Flathead—W. B. Rhoades, Secretary Chamber of Commerce, Kalispell.
H. J. McCabe, Secretary Chamber of Commerce, Whitefish.

Gallatin—C. A. Dunlop, Secretary Gallatin Valley Commercial Club, Bozeman.

Granite—A. P. Huffman, Secretary Commercial Club, Philipsburg.

Jefferson—D. M. Kelly, Secretary Commercial Club, Boulder.
F. H. Johnson, Secretary Commercial Club, Whitehall.

Lewis and Clark—W. T. Hull, Secretary Helena Commercial Club, Helena.

Lincoln—L. H. Faust, Secretary Commercial Club, Libby.

Madison—R. R. Herndon, Secretary The Madison Club, Virginia City.
R. W. Rossiter, Secretary Sheridan Board of Trade, Sheridan.
B. F. Yerkes, Secretary Commercial Club, Twin Bridges.

Meagher—C. P. Tooley, Secretary Commercial Club, Twodot.
Secretary Chamber of Commerce, Harlowton.
W. P. Porter, Secretary Board of Trade, White Sulphur Springs.

Missoula—F. J. Erfert, Secretary Chamber of Commerce, Missoula.

Park—Richard Brown, Secretary Livingston Club, Livingston.

Powell—Frank Conley, Secretary Chamber of Commerce, Deer Lodge.

Ravalli—W. H. Kirby, Secretary Business Men's Association, Hamilton.
J. R. Faulds, Secretary Commercial Club, Stevensville.

Rosebud—Ira Cole, Secretary Commercial Club, Forsyth.

Sanders—Geo. R. Ogden, Secretary Plains Valley Commercial Club, Plains.

Silver Bow—J. T. O'Brien, Secretary Business Men's Association, Butte.

Sweet Grass—A. J. Glass, Vice-President Commercial Club, Big Timber.

Teton—J. T. Ritchey, Secretary Commercial Club, Conrad.
J. E. Webb, Secretary Commercial Club, Choteau.

Valley—John E. Dawson, Secretary Commercial Club, Glasgow.
B. W. Brockway, Secretary Commercial Club, Malta.
G. H. Coulter, Secretary Commercial Club, Culbertson.
W. B. Wooldridge, Secretary Commercial Club, Hinsdale.

Yellowstone—H. M. Brayton, Secretary Chamber of Commerce, Billings.

MONTANA.

Vast in Size, Sparsely Peopled, With a Fertile Soil and Fine Climate, the Advantages of the Treasure State Are Becoming Known and It Has Entered Upon a New Era of Development.

"I SOLD my land in Iowa for twice what I paid for land in Montana and the Montana land yields twice what the Iowa land yielded," a man who had bought a farm in one of the fertile valleys of Montana said to the writer a few years ago. Another who first rented a farm, then took up a homestead, and now has a fine farm of his own, writes he "came to Montana for the reason I believed it presented better opportunities to a young man than the East." Another writes that he "thought by coming out to the West I could do better and that there would be better chances for the boys, and in this I was not mistaken."

The reasons which induce men to change their locations are innumerable. Some move to get away from drouth or floods or cyclones; from the washing away of the soil of their farms; from the drain of their resources

caused by the necessity of purchasing fertilizers. Men working as tenant farmers or for salaries or wages welcome the chance to become independent. Rather than divide the home farm into small parcels, prudent parents aid their sons and send them to seek farms of their own. Some remember the fortunes that have been realized by the rise in the values of land in states which have become settled and wish to get into a new country where the same thing will occur again. Some who are succeeding in a small way know that they can succeed in a large way in a country just beginning to be developed. Men with capital know that their money can be put to work more profitably in a new country than in an old one. Many feel that they could better their condition in a less crowded environment. These are merely a few of the many reasons that are influencing men to leave their old homes and seek new ones in Montana. To all such who are industrious, determined to succeed and possess the qualities to make a good citizen, Montana extends a hearty welcome to the Treasure State—the land of opportunities unequalled.

Such description as can here be given of the resources of Montana and the opportunities the State offers to the settler must necessarily be imperfect because the subject is so vast. Montana is big—that is the thought to bear in mind at all times. It is of greater area than all of New England, New York, New Jersey, Delaware and Maryland combined; or of England, Wales, Scotland and Ireland. It is equal in size to two-thirds of France or of Germany; and it has a population of only about 300,000. It is the one great unpeopled area of fertile land in the United States waiting to be peopled. It has the land, it wants the people. It invites **you.**

PLAINS, MOUNTAINS, ALTITUDES AND GEOGRAPHY.

Montana is one of the northwestern states of the United States, bounded on the east by North Dakota and South Dakota, on the south by Wyoming and Idaho, on the west by Idaho and on the north by Canada. It is the third state in size, California and Texas only being larger. In its western part it is traversed by the main range of the Rocky Mountains. The first settlements were in this section and for this reason Montana—a Spanish word signifying mountainous—was chosen as the name of the territory when it was created in 1864. The name is melodious and appropriate to a part of Montana but is misleading as a descriptive term for the State, two-thirds of which consists of level, undulating or table lands, with many fertile valleys, some of large extent, nestling among the mountains. Spreading from the eastern boundary, at gradually rising altitudes, to the backbone of the continent is a great plain of rolling country large enough to contain several of the older states. This great region which has been almost entirely devoted to the pasturage of cattle and sheep is undergoing a marvelous transformation in being converted into a region of productive farms.

Upon the western side of the Rockies are masses of heavily timbered mountains, interspersed with many valleys, the land falling in elevation until at the Idaho line, where Clark's Fork of the Columbia leaves Montana, the

altitude is below 2,000 feet, an elevation which is about the same as that where the Missouri River leaves the State at the eastern boundary.

The Bitter Root and Coeur d'Alene Mountains form the boundary between Idaho and Montana, and to the northeast of the latter is the Cabinet Range. East of the Continental Divide are the Big Belt, the Little Belt, the Madison, the Gallatin, the Crazy, the Snowy, the Judith and the Bear Paw Mountains and other ranges of mountains and hills. The eastern boundary is in a country of plains and rolling hills; the northern boundary is of a similar character, the waters draining into the Missouri on the south through the Milk River and other tributaries. The western part is mountainous and is drained by the Kootenai and Clark's Fork of the Columbia and its numerous tributaries. From the southern boundary line there is a decided slope of land to the north, the waters draining into the head streams of the Missouri and into the Yellowstone. North of the Yellowstone is a divide between that stream and the Musselshell, and others between the Musselshell and the Missouri and Milk Rivers, both trending from west to east, with many smaller divides and drainage basins on both north and east and south and west directions and in irregular variations of the points of the compass.

The plains, the valleys, the waters, the mountains each constitute a part of Montana's greatness. The mountains are the sources of the great rivers including the Missouri, the great river of the United States east of the Rocky Mountains, and of the Columbia, the great river of the United States west of those mountains. Smaller streams find their sources in the lesser ranges.

A fact not generally understood but of prime importance in its bearing on climate and consequently on crop production is that the elevation of both mountains and valleys in Montana is much less than that of the great mountain belt of Colorado, Wyoming, New Mexico, Utah and Nevada. The elevation of Santa Fe is 6,840 feet; of Denver, 5,300; of Salt Lake City, 4,350, and of Helena (near the base of the Continental Divide) 4,110. The passes across the Rocky Mountains are also lower than in other states. The Northern Pacific Railway crosses the Continental Divide at Mullan Pass at an altitude of 5,547 feet. The Chicago, Milwaukee & St. Paul and the Great Northern cross at elevations not much higher.

The report of Professor Gannett, of the United States Geological Survey, shows the average elevation of Montana above sea level to be 3,900 feet. Other states average: Nevada, 5,600 feet; Wyoming, 6,400 feet; Colorado, 7,000 feet. None of Utah and only 9,000 square miles of Colorado is below 4,000 feet, while 51,600 square miles of Montana are less than 4,000 feet and 40,700 square miles are less than 3,000 feet above sea level. "Taking the area of the State (Montana) as a whole," says U. S. Census Bulletin 153, "it has been ascertained that 49 per cent is under 5,000 feet above sea level; 21 per cent from 5,000 to 6,000 feet; 14 per cent from 6,000 to 7,000 feet; 9 per cent from 7,000 to 8,000 feet, and 7 per cent over 8,000 feet. The influence of altitude upon climate and crop production is too well known

to need comment; but attention is especially invited to the figures which show how vast is the area of lands at a low altitude and to the fact that some of the most productive grain fields of the world are to be found in Montana at elevations greater than 5,000 feet.

In The Morning.

Montana has been divided by geographers into four sections, each having its water system and natural boundaries tolerably well defined as follows: The northwestern, which includes all that part lying between the Rocky Mountains and the Bitter Root Range; the southern, which is drained by the three forks of the Missouri; the southeastern, which is drained by the Yellowstone; and the northern, which includes the valleys of the Milk and Missouri rivers and bordering plains. These sections, in common speech, are divided into smaller sections, named generally after some stream or valley, as the Bitter Root Valley, the Flathead Country, the Gallatin Valley, the Upper Yellowstone Valley, the Lower Yellowstone Valley, the Musselshell Country, the Sun River Valley, the Milk River Country, the Big Hole Basin, the Judith Basin, etc.

THE NORTHWESTERN SECTION.

The northwestern section includes all of Montana which is situated on the Pacific Slope. It is drained by Clark's Fork of the Columbia and the Kootenai River and embraces the counties of Silver Bow, Deer Lodge, Powell, Granite, Ravalli, Missoula, Sanders, Flathead and Lincoln. There are masses of mountains in this area and many mineral districts, one of which is Butte, the greatest in the world for its size, and many productive valleys, among them being the Deer Lodge, the Bitter Root, the Missoula, the Clark's Fork, the Flathead, the Kootenai

A Montana Farming Valley.

and many others adjacent to tributary streams. It includes the Flathead Indian Reservation and Flathead Lake, the largest fresh water lake in the West. The valleys are of varying width and are bounded by mountains covered with forests. This is the great timbered section of Montana. The elevations of the county seats are: Butte, 5,484; Anaconda, 5,288; Deer Lodge, 5,419; Philipsburg, 5,175; Hamilton, 3,571; Missoula, 3,208; Thompson, 2,462; Kalispell, 2,946; and Libby, 2,055. The precipitation is greater on the western than on the eastern side of the Rockies and the weather milder. In the industries of mining, lumbering and fruit growing this is the most important section of Montana and is the most populous.

THE SOUTHERN SECTION.

The southern section includes the counties of Beaverhead, Madison, Jefferson and Gallatin. These counties were among the first settled. Bannack, in Beaverhead County, was the first, and Virginia City, in Madison County, the second, territorial capital. Beaverhead, Jefferson and Madison counties are noted for their mineral wealth, and Gallatin County is first in rank in quantity of agricultural products. These counties all contain extensive valleys, are watered by many streams and have great resources which are awaiting development. The irregular line of the Continental Divide is found on the western boundary of Jefferson County and the southern end of Madison County, and the northern, southern and western ends of Beaverhead County. The slope of the land is from south to north to Three Forks; and in Jefferson County from north to south, the principal stream being the Boulder River, which empties into the Jefferson east of Whitehall. The Big Hole Basin is a noteworthy section of Beaverhead County; and the Beaverhead, the Ruby, the Jefferson, the Madison and the Gallatin rivers have large and productive valleys. The altitudes of the county seats are, in feet: Dillon, 5,098; Virginia City, 5,882; Boulder, 4,919; Bozeman, 4,753.

THE SOUTHEASTERN SECTION.

The southeastern section includes the counties in the drainage system of the Yellowstone River which are, from east to west, Dawson, Custer, Rosebud, Yellowstone, Carbon, Sweet Grass and Park. In these counties great progress is being made in the development of the agricultural resources. Many thousands of settlers have come in within the past few years. Vacant lands are rapidly being settled upon. Large ranches have been subdivided and sold in small tracts. Great crops of grain and alfalfa and sugar beets are grown on irrigated land. Farming without irrigation has met with marked success in many cases; fruits having been successfully cultivated; the towns are busy and growing and the whole Yellowstone Country is forging to the front in every way. The slope of the land from the Wyoming line is north to the Yellowstone River and south from the divides between the Musselshell and the Missouri. The greater part of the arable land is south of the Yellowstone. Besides the extensive Yellowstone Valley, smaller valleys are those of Powder, Tongue, Rosebud, Big Horn, Clark's Fork of the Yellowstone, West Rosebud, Stillwater, Boulder and Shields River.

The altitudes of the county seats are, in feet: Glendive, 2,071; Miles City 2,357; Forsyth, 2,515; Billings, 3,111; Red Lodge, 5,537; Big Timber, 4,075; Livingston, 4,491.

THE NORTHERN SECTION.

The northern division, including the drainage basin of the Missouri, except the part drained by the three forks of the Missouri and called the southern section, embraces the counties of Broadwater, Meagher, Fergus, Lewis and Clark, Cascade, Teton, Chouteau and Valley. Broadwater and Lewis and Clark counties are on the Upper Missouri where the course of the river is in a northerly direction; it turns to the northeast in Lewis and Clark County and after running in that direction for many miles takes its great turn to the east. Both counties have been noted for their mineral productions, and in Lewis and Clark County is Helena, the capital of Montana. Separated from the Missouri River by a mountain range, Meagher County is drained by the Smith River on the north and the Musselshell River on the south. The Musselshell River has a long course nearly due east through Meagher and Fergus counties until it reaches Melstone, where it makes a sharp turn, flows north many miles and empties into the Missouri River. Fergus County is drained in part by this river, but it does not flow through any part of the Judith Basin, which is drained by the Judith River, which empties into the Missouri River many miles west of the mouth of the Musselshell. Cascade County adjoins Lewis and Clark on the northeast. Sun River empties into the Missouri in this county a few miles above the series of falls known collectively as the Great Falls of the Missouri. Smith and Belt rivers come in from the south.

Teton, Chouteau and Valley, all counties of vast area, are situated south of the Canadian boundary line and include that great plains section of northern Montana which rises gradually from the eastern boundary of the State in Valley County where the elevation is less than 2,000 feet to the summit of the Rocky Mountains in Teton County. The Teton and Marias are large tributaries of the Missouri, but the Milk River is its most important affluent in Montana. It drains parts of Teton, Chouteau and Valley counties. Along its course runs for many miles the Great Northern Ry. and many of the best farms and thriving towns of this part of the State are in its valley.

Great irrigation projects are in process of construction in the Milk River Valley, which is undergoing a rapid development. The valley lands produce marvelous crops and the great plains, stretching north to the Canadian line and offering homes for hundreds of thousands of settlers, are commencing to be taken. Dry farming has proved successful in many instances, and here is an empire of land now used only for pasture, except in places, waiting for the tiller of the soil to take it. The towns in the Milk River Valley are flourishing places and are made the scenes of great business activity by the number of new arrivals who are coming into them in their search for land and going out of them to make their selections.

Corner of a Clover Field.

THE RIVER SYSTEMS.

Montana is generously watered and the advantages it possesses in its admirable river systems cannot be too highly estimated. The rivers rise in the highest mountains, some peaks of which reach a height of 11,000 feet, and flow to the borders of the State where the elevation is about 2,000 feet.

Middle Fork of the Flathead River.

Near their sources are great mining camps, and no part of the mountain region is without wood, water and grass, the essential things for mining operations, prospecting and camping out for pleasure. The great rivers are the Missouri and the Yellowstone, which drain the eastern, and Clark's Fork of the Columbia, which drains the western part of the State. These rivers have innumerable tributaries. The Missouri, which drains more than two-thirds of the State, is formed at Three Forks, Gallatin County, by the union of the Jefferson, Madison and Gallatin rivers. The Missouri flows first north, then east through the central northern part of the State into North Dakota, where it receives the waters of the mighty Yellowstone a few miles beyond the boundary line. Many important rivers flow into the Missouri, each having many tributaries. In order from east to west, entering from the north, are Poplar, Milk, Marias, Teton, Sun,

Dearborn, and from the south, the Musselshell, Judith, Belt and Smith. These rivers drain extensive areas of country, each in some respect differing from the other. The Milk River has a large drainage basin south of the Canadian boundary; the Musselshell is a long and important river, and the Judith drains the large and fertile Judith Basin.

The three forks which form the Missouri are large rivers. The Gallatin rises in the Yellowstone Park and flows south through the Gallatin Valley, a section of marvelous fertility. The Madison also rises in the Yellowstone Park and flows through the upper and lower Madison valleys. The Jefferson, the largest of the three, receives from the north the Boulder River, which drains a large part of Jefferson County, and is formed by the junction of the Beaverhead and the Big Hole rivers. The Jefferson Valley, the Ruby

Looking Across Lame Deer Creek Into Soldier Gulch—The Battle Field Where General Miles and Lame Deer Fought.

Valley, the Beaverhead Valley and the Big Hole Basin are noted places within the area drained by the Jefferson and there are many fertile valleys of smaller size.

The Yellowstone River drains the southeastern part and carries nearly as much water as the Missouri. Important tributaries entering from the south are the Powder, Tongue, Rosebud, Big Horn, Clark's Fork, Stillwater and Boulder rivers, and from the north the Sweet Grass and Shields rivers.

The western part of the State drains into the Pacific Ocean through the Columbia River, into which empty the waters of the Kootenai and Clark's Fork of the Columbia. This section abounds in streams, some of which are the Bitter Root, the Deer Lodge, the Big Blackfoot, the Hellgate, the Missoula, the Flathead, all having numerous affluents.

There are many beautiful lakes in Montana, but Flathead Lake is the only one of great size. It is 33 miles long and 15 wide, covering an area of 360 square miles. It is navigable and a steamer makes regular trips between Somers and Polson.

CLIMATE AND RAINFALL.

With one part of the State on the Atlantic and the other on the Pacific slope of the continent, with many valleys and basins affected by local surroundings, with a total area as great as two-thirds of France or Germany, with elevations ranging from 2,000 to 6,000 feet, rising even to 11,000 feet in mountain peaks, considerable differences in the climatic conditions existing at various points in Montana may be expected. Tables of statistics of meteorological observations at various points will be found on another page, but, as a general statement, it may be said that the climate of Montana is healthful and exhilarating, the waters pure and clear, the air clear, dry, vitalizing, filled with ozone of a kind which it is a luxury to breathe, and that perhaps nine out of ten persons who have ever lived in Montana prefer its climate the year round to that of any other place.

"There are no fogs, no malaria in Montana, and contagious and infectious diseases are rare, and when manifested prove to have come from the infection of less favored states, but here they yield readily to professional treatment, proving fatal in only the exceptional case. The winter season is not one of continued cold; when the frigid breezes of Canada are directed over the State the thermometer will drop as low as twenty degrees below zero, but these cold periods are infrequent and of short duration, as the prevailing winds of the winter are the soft chinooks that quickly dissipate the snow and bring the balmy atmosphere of summer and the tinge of a pleasing autumn. And when a cold wave does sweep in from the east or north, it is not severely felt as the atmosphere at such times is almost entirely free from the chill of moisture, and one does not feel twenty degrees below here as severely as zero and above is felt in the eastern states. Except upon the plains of the extreme eastern border of the State, the blizzard is unknown, and the cyclone and the tornado are not known. Great herds of cattle and flocks of sheep feed throughout the winter on every bench and plain, and these are given but little shelter, food or attention. The nourishing properties that remain in the grass and sustain the stock during the winter months is due to the fact that before the grass is ripened, the chinook winds cure it, turning it into standing hay, instead of having the frost drive the nutriment into the roots, leaving dead and substanceless straw. This, with the salubrity of the climate, is the secret of the success of Montana's stock ranges. The snowfall is light except in the midst of the mountain ranges and at the higher altitudes, the greater part of the State seldom receiving a precipitation of more than two or three inches at a time. The winters are capricious, but they are warm, sunlit and inviting, and the occasional cold snap but adds vigor to the universal energy of the people. Spring, summer, autumn and winter are all enjoyable and healthful seasons. In midsummer when the sun is overhead, the temperature reaches an uncomfortable point, but as the sun dips behind the mountains the cooling air of

the Rockies displaces the heated air of the day, leaving the evenings and nights delightfully cool and refreshing."—[Seventh Annual Report, Bureau of Agriculture, Labor and Industry, pages 9-10.]

A Government report on the climate of Montana contains the following:

"The light snowfall in the valleys throughout the State during the winter months is usually speedily evaporated by the chinook winds which are prevalent from Oregon to Nebraska, from the Peace River to Arizona, being particularly common in Montana, where they do much to modify the climate."

The chinook is a wind which comes from the warm Japanese current in the Pacific Ocean and tempers the climate in all the country it reaches. There are cold days in Montana as are to be expected in a northern state, but a cold "spell o' weather" usually lasts only two or three days at a time, and outdoor work during the winter months is seldom prevented by the severity of the cold.

"The average temperature in Montana is about the same as in New York or Pennsylvania," said James H. Mills, in his little book called "The Treasure State. "The snowfall in the valleys is less than in either of those states; there is more sunshine than in any Middle, Eastern, or New England state, and the great mountains, ribbed with veins of gold, silver and copper and crowned with majestic forests, are but gigantic framework in which are set great picture valleys, bench lands and foothills, fertile as the Valley of the Nile, and which have never yet refused to yield bounteous harvests when touched by the hand of industry and nourished with water."

The United States Weather Bureau has reports from a hundred stations in Montana where careful observations have been made and recorded of the precipitation in the form of rain or snow. These reports extend over a long period of years and are classified in the office of the Weather Bureau at Helena; and it has been found that the average precipitation for the ten year period, preceding 1907, based upon reports of the stations reporting for those years, was for the whole State of Montana 15.57 inches. It is the opinion of many men who have observed the effects of settlement and cultivation in other Western states that the turning of the sod and the cultivation of large areas heretofore devoted to grazing—followed as they should be by a planting of trees—will cause a permanent increase in the annual moisture, and there is scientific support for this theory. In considering questions of climate and rainfall the great size of Montana should always be borne in mind and allowances made for local conditions and differences of altitude which affect both climate and rainfall. The climatic conditions at Skowhegan, Maine, differ from those at Baltimore, Maryland; those at Burlington, Vermont, from those at Wilmington, Delaware; those at Springfield, Massachusetts, from those at Trenton, New Jersey; and those at Buffalo, New York, from those

Stations.	Counties.	Elevation, feet.	Temperature (degrees Fahrenheit).						Precipitation (inches.)							Number rainy days.	Sky.			Prevailing direction wind blew from.
			Length of record, years.	Annual Average.	Highest.	Date.	Lowest.	Date.	Length of record, years.	Total for the year.	Greatest monthly.	Month.	Least monthly.	Month.	Total snowfall.		Number clear days.	Number partly cloudy days.	Number cloudy days.	
Billings	Yellowstone	3,115	13	....	...	.....	..|—20	Feb.. 1	9	16.89	5.37	May	0.23	July	42.3	81	..	....	....	w.
Broadview Experiment Station	Yellowstone	.....	3	....	103	Aug. 1	—30	Feb. 1	3	14.73	5.20	May	0.23	Jan.	51.8	82	....	....	....	nw.
Chinook	Chouteau	2,502	11	....	109	Aug. 1	—22	Feb. 1	11	.....	1.72	June	T.	Dec.	.....	..	....	....	....	w.
Crow Agency	Rosebud	3,041	26	46.6	101	Aug. 1	—17	Dec. 1	26	19.35	5.55	May	0.05	Jan.	42.5	75	....	....	....	nw.
Ekalaka	Custer	.....	8	45.0	103	Aug. 1	—26	Feb. 1	8	.....	2.70	May	0.20	Nov.	46.4	...	..	....	....	w.
Fallon	Custer	2,208	4	44.0	107	Aug. 1	—32	Feb. 1	4	14.80	3.98	May	T.	Nov.	.....	35	195	99	72	w.
Fort Benton	Chouteau	2,630	29	....	105	Aug. 1	—14	Feb. 1	29	14.71	4.08	May	0.00	July	20.6	39	....	....	....	sw.
Glendive	Dawson	2,069	19	....	...	.....	..|—24	Feb. 1	19	10.46	3.10	Oct.	T.	Nov.	.....	...	....	....	....	sw.
Goldbutte	Chouteau	.....	3	....	99	July 30	....	... ..	3	15.09	5.27	June	0.08	Dec.	.....	...	....	....	....	...
Graham	Custer	.....	3	45.6	101	Sept. 7	—24	Feb. 1	3	.....	4.46	June	0.10	Nov.	41.4	...	....	....	....	nw.
Havre	Chouteau	2,505	29	44.0	106	Aug. 1	—19	Mar. 4	29	11.92	3.25	June	0.05	Nov.	35.9	80	175	110	51	sw.
Jordan	Dawson	.....	4	....	103	July 31	—32	Feb. 1	4	.....	1.60	Oct.	0.00	July	.....	...	....	....	..	nw.
Miles City	Custer	2,371	17	46.8	108	Aug. 1	—30	Feb. 1	7	19.16	5.58	May	0.07	Nov.	54.3	96	147	125	94	s.
Steele	Chouteau	3,170	4	47.1	104	Aug. 1	—15	Feb. 1	4	17.61	5.59	May	0.00	July	46.0	67	209	58	99	w.
Adel	Cascade	5,200	10	42.7	92	July 1	—12	Dec. 31	10	32.72	9.40	May	0.13	Nov.	94.0	93	198	58	110	w
Agricultural College	Gallatin	4,700	11	41.3	94	Aug. 1	—20	Feb. 1	11	25.50	9.54	May	0.32	July	119.1	95	....	....	....	se.
Anaconda	Deer Lodge	5,300	7	42.3	94	July 31	—18	Feb. 1	7	18.89	5.90	May	0.23	Dec.	.....	...	....	....	..	
Augusta	Lewis & Clark	4,071	10	42.2	96	July 31	—20	Feb. 1	10	23.44	6.33	May	T.	Nov.	43.5	66	250	59	57	w.
Butte	Silver Bow	5,716	15	43.4	94	July 31	—18	Feb. 1	15	17.99	5.67	May	0.15	Dec.	51.0	54	151	53	160	w.
Canyon Ferry	Lewis & Clark	3,641	10	44.1	100	Aug. 1	—18	Feb. 1	10	16.35	6.57	May	0.08	Dec.	.....	75	218	100	48	nw.
Cascade	Cascade	3,361	5	46.9	102	Aug. 1	—14	Feb. 18	5	26.23	8.76	May	0.08	Nov.	50.9	93	202	112	52	sw.
Dillon	Beaverhead	5,147	9	44.0	91	Aug. 1	—24	Feb. 1	9	20.61	9.16	May	0.14	Nov.	59.4	105	166	99	101	sw.
Fort Shaw	Cascade	3,500	22	45.6	100	July 31	—15	Feb. 1	22	16.14	5.08	June	0.01	Dec.	28.5	75	219	67	80	sw
Great Falls	Cascade	3,350	18	46.9	100	Aug. 1	— 7	Dec. 31	18	21.80	4.69	May	0.11	Nov.	49.8	96	176	136	54	sw.
Hamilton	Ravalli	3,575	6	45.9	96	July 31	— 9	Jan. 31	6	13.48	3.83	May	0.03	Dec.	7.4	77	147	83	136	w.
Helena	Lewis & Clark	4,110	29	44.0	98	Aug. 1	—14	Feb. 1	29	19.93	6.19	May	0.18	Nov.	37.5	88	110	113	134	sw.
Kalispell	Flathead	2,965	10	43.5	92	July 31	—14	Jan. 31	10	18.51	4.21	May	0.35	Nov.	39.2	125	120	113	132	w.
Lewistown	Fergus	4,010	11	44.2	103	July 30	—2[illegible]	Jan. 31	11	22.10	5.86	Oct.	0.04	July	107.8	67	130	150	86	nw.
Livingston	Park	4,488	12	...	...	.....	..|—14	Jan. 31	12	19.80	9.60	May	0.28	Nov.	65.5	78	....	....	....	sw.
Missoula	Missoula	3,225	28	45.3	101	July 31	—1[illegible]	Feb. 1	28	.....	4.90	May	T.	Jan.	.....	...	....	....	....	...
Ovando	Powell	4,207	9	....	98	July 31	—3[illegible]	Feb. 1	9	.....	5.30	May	0.04	Aug.	.....	...	....	....	....	w.
Plains	Sanders	2,473	10	45.6	102	July 31	—15	Feb. 1	10	15.08	3.51	May	0.20	Dec.	.....	41	208	7	131	sw.
Raymond	Teton	1,260	4	41.3	93	July 31	—2[illegible]	Nov. 11	4	23.07	6.87	May	T.	Nov.	.....	66	171	145	51	w.
Red Lodge	Carbon	5,518	8	40.8	92	Aug. 1	—29	Feb. 1	8	26.50	11.96	May	0.32	Nov.	193.5	87	170	90	109	se.
Toston	Broadwater	3,950	7	43.5	96	Aug. 1	—2[illegible]	Feb. 1	7	9.47	3.10	June	T.	Nov.	12.0	48	212	75	79	...
Utica	Fergus	5,000	15	....	99	Aug. 1	—14	Feb. 1	15	21.67	7.31	May	T.	Nov.	88.9	...	....	....	....	w.

at Newport, Rhode Island; yet, Montana embraces a territory larger than the combined area of the states in which are located the cities named.

SOIL, SUNSHINE AND CROPS.

There is much difference in the soil of various places in Montana, but there is comparatively a small area which will not produce some useful plant growth. Generally speaking the soil throughout Montana is rich in the primary elements of fertility; it has not been impoverished by leaching caused by constant rains; and the climate is favorable for the growth and ripening of any crop that will mature in any part of the United States north of the Potomac River. Nearly every product of the soil that can be grown in the Eastern, Middle, or Western states is successfully cultivated in Montana and in most instances, as the crop statistics show, yield much more abundant harvests.

One reason for the luxuriance of the crops grown in Montana in a comparatively short growing season, which is not understood by those who live in a lower altitude, is that the percentage of sunshine is greater in Montana than in the states lying east and west of it. The percentage of sunshine received throughout the upper and central Mississippi valleys is said to be about 45 per cent of the possible amount while in Montana this percentage rises to 60 per cent or above. Other conditions being equal it is obvious that that plant will make the best progress and development which receives the greatest amount of sunshine. Thus the claim that there are four hours of sunshine in Montana to every three in the Mississippi Valley and that crops should grow as much in three months in Montana as in four months in the Mississippi Valley, seems to be sustained. And another reason is that while the rainfall is small it usually comes when it is of most service.

Owing to high altitudes certain places experience cold nights and frosts and tender vegetables and fruits cannot be grown successfully. Corn, except a quick growing variety for table use, is not now a crop of commercial importance in the State generally, but makes astonishing yields, with huge stalks and large, well filled ears, in the lower Yellowstone Valley where its cultivation is extending. The principal cereal productions are wheat, oats, barley and rye. All the grasses grow luxuriantly. Alfalfa, timothy, clover, are amongst the most important crops. Flax and broom corn are being successfully cultivated. Tobacco has been grown in some counties. Potatoes, all root crops, and vegetables, yield enormously. The growing of sugar beets is an established industry, a large beet sugar factory now being in successful operation at Billings, and others are projected for other places. Montana is specially adapted for the growth of sugar beets,

the yield per acre being enormous and the saccharine strength being of the greatest. Montana celery equals the best in the world; and strawberries and other berries grow to perfection and are very profitable crops, the home market taking the whole product at high prices. Apples are grown in every county and crab apples are especially prolific. The fruit industry has become a leading one in Custer, Yellowstone, Carbon, Ravalli, Missoula, Flathead and Lincoln counties. Many varieties of apples, pears, plums, peaches and cherries grow to perfection and the profit derived from orchards is very great. The Bitter Root Valley is called "The Land of the McIntosh Red" apple.

MONTANA IN COMPETITION WITH THE WORLD.

Perhaps the best means of judging the climate of Montana so far as its bearing upon agriculture is concerned is a list of its productions. Every fruit, vegetable and grain that matures west of the Ohio River thrives in some part of Montana. At every one of the great expositions of recent years exhibits from Montana have been put in competition with exhibits from other states and other countries. At the Chicago Exposition of 1893 besides awards to the State of Montana for gold nuggets, crystals and placer gold, for collections of silver and silver crystals, for copper ores, for coal, for building stones and for Montana's statue of justice (in silver), awards were given to the State and exhibitors from the State, for agricultural and horticultural exhibits as follows:

Sample of Gold Medal Awarded Montana Exhibitors.

CHICAGO WORLD'S FAIR, 1893—AWARDS TO MONTANA EXHIBITS.

Apples; Collective Exhibit of Flax Seed; Oats, Hay:	State of Montana.
Flour:	Bozeman Milling Co; Elling & Hyndman; R. M. Herold; Nelson Story.
Barley:	J. W. Dawes; M. M. Ferguson; Samuel Fowler; Manhattan Malting Co.
Wheat:	William Caldwell; J. Mason.
Hay:	Bailey & O'Donnell.
Timothy Hay:	Thomas Blake; Mrs. Ed Duke.

At the Louisiana Purchase Exposition held at St. Louis in 1904, the Grand Prize for the Mining Industry was awarded to the State of Montana. The State of Montana was awarded a gold medal for fruit; Bass Brothers of Stevensville received a gold medal for apples; and the Bitter Root Farm

of Hamilton a gold medal for apples and crab apples. Thirty-eight silver and 23 bronze medals were received by various exhibitors from Montana for apples, crab apples, strawberries, plums and prunes. For agricultural exhibits from Montana the awards were: Gold medals, 69; silver medals, 62; bronze medals, 53.

ST. LOUIS EXPOSITION, 1904—GOLD MEDALS AWARDED TO MONTANA EXHIBITORS FOR AGRICULTURAL PRODUCTS.

Barley:	Duncan Cameron, Cascade; B. H. Kemp, Cascade; A. H. Sales, Salesville.
Barley and Oats:	C. F. Anderson, Belt; J. E. Morse, Dillon; P. R. Nash, Bozeman; James A. Potter, Bozeman.
Barley, Oats and Wheat:	E. M. Davidson, Belgrade; W. C. Newton, Bozeman; Daniel Payne, Monarch; Robert Scott, Sand Coulee.
Barley, Wheat, Oats, Rye and Speltz:	Experiment Station, Bozeman.
Barley, Wheat ,Rye and Oats:	E. Bison, Great Falls.
Beans:	Frank Rene, Echo.
Beans and Peas:	Samuel Dick, Great Falls.
Bromus Inermis:	J. R. Krueger, Plains; Christ Prestbye, Kalispell.
Hay—Alfalfa:	Paul McCormick, Billings.
Hay—Timothy:	J. M. Horan, Belt.
Hay:	Claude V. Flynn, Toston.
Hay Seed—Timothy:	Ed Peterson, Kibbey.
Irrigated Products:	Montana Commission.
Oats:	F. K. Armstrong, Bozeman; A. M. Austin, Flathead; C. H. Austin, Flathead; O. H. Barnhill, Holt; Joseph Braithvant, Highwood; Henry Brush, Chinook; James Cook, Chinook; Wallace Cook, Chinook; C. R. Featherly, Dillon; John H. Green, Plains; Frank Harlen, Missoula; B. J. Heaney, St. Peter; J. M. Horan, Townsend; Carl Innes, Dillon; Otis Johnson, Plains; J. H. Lamphear, Manhattan; C. H. Lind, Great Falls; Con Mannix, Townsend; Theodore Nelson, Dillon; Theodore Norman, Bozeman; C. E. Skidmore, Bozeman; G. W. Sparr, Bozeman; Leonard Stone, Central Park; Chas. Stephens, Highwood; J. H. Stubbs, Kalispell; M. D. Sullivan, Townsend; Otis Thompson, Plains; C. Van Wagen, Laurel, and M. L. Wade, Choteau.
Oats and Wheat:	C. M. Anderson, Belt; W. R. Callen, Monarch; Jacob Carolus, Bozeman; John C. Coulson, Cascade; C. A. Lee, Sand Coulee; J. J. Patterson, Truly; C. W Winslow, Waterloo, and W. L. York, Riceville.
Vegetables—Collective Exhibit of:	Montana Commission.
Wheat:	Pete Fake, Eden; H. Hicke, Truly; G. P. Kessner, Stockett; Joe Manxer, Eden; Charles Morgan, Truly; John R. Ross, Great Falls.

At the Lewis and Clark Centennial Exposition held at Portland, Oregon, in 1905, the State of Montana was awarded a gold medal for Educational Exhibit, gold medal for collective exhibit of grains and grasses, gold medal for mineral exhibit and gold medal for gold exhibit.

In the agricultural exhibit the following awards were made to Montana: Gold medals, 62; silver medals, 13; bronze medals, 2. Each exhibitor from Montana of horticultural products received a medal.

PORTLAND EXPOSITION, 1905—GOLD MEDALS AWARDED TO MONTANA EXHIBITORS FOR AGRICULTURAL PRODUCTS.

Barley:	Manhattan Malting Co. and J. P. Stone.
Barley and Oats:	J. E. Morse.
Barley and Wheat:	W. J. Bowers.
Barley and Timothy:	Ed Peterson.
Barley, Wheat and Oats:	Nash Bros. and C. R. Gearch.
Barley, Spring Rye and Wheat:	Manhattan Malting Co.
Bromus Grass Seed, Wheat, Oats and Flax:	C. Prestby.
Flax and Oats:	P. R. Nash.
Oats:	John Kinner, Mrs. A. Lock, J. Carolus, C. Van Wagner, W. A. Little, G. N. Featherly, John H. Stubbs, John McKennick, Pabst Steel, S. Holmstead, Thos. Bauers, Thomas Nelson, J. E. Morse, Clark Harlan, W. C. Newton, C. Mancat, George Bentley, C. W. Winslow, Carl Innes, Charles King and U. Marte.
Rye:	C. H. Campbell, E. E. Wilcox.
Rye and Wheat:	C. H. Lindle.
Timothy Seed:	J. C. Gibson.
Wheat:	Thomas Kening, A. C. Vanderpool, James Baker, S. D. Luce, S. Holmsland, H. F. Peterson, E. F. Mann, A. H. McMillan, Daniel Cummings and George Sparrel.
Wheat—Macaroni:	John Epperson.
Wheat and Oats:	John Baumgardner and Otis Johnson.

PORTLAND EXPOSITION, 1905—MEDALS AWARDED TO MONTANA COUNTY EXHIBITS.

County.	Kind of Medal.	Medal Awarded For.
Beaverhead	Gold	Grains, Grasses and Decorated Panel.
Cascade	Gold	Grains and Grasses.
Flathead	Gold	Grains and Grasses.
Gallatin	Gold	Grains, and Grasses Used in Decoration of Panel.
Missoula	Silver	Grains and Grasses in Sheaf and Decorated Panel.
Ravalli	Silver	Grains and Grasses.
Yellowstone	Gold	Grains and Grasses in Sheaf.

The products of the soil of Montana are of such superior quality that they win prizes wherever exhibited. At the Dry Farming Congress, held at Cheyenne in 1908, Montana exhibitors received most of the prizes as is set forth in detail in the description of Yellowstone County, and Montana apples won prizes at the National Apple Show at Spokane in 1908.

OUR BARLEY THE BEST IN THE WORLD.

At the National Irrigation Congress, held at Salt Lake, the large, beautiful and costly Pabst cup was awarded to the Manhattan Malting Co. of Manhattan in Gallatin County, for the best brewing barley raised in the United States. The variety shown was the Saale or Chevalier barley.

In 1889, Mr. Henry Altenbrand of New York, and Manhattan, Montana, who was prominently connected with the malting business for twenty-five years, procured from Germany 2,000 bushels of Saale barley, a variety

possessing superior malting qualities. This seed was planted in Wisconsin, Minnesota, Iowa, Illinois, New York and Montana. At the end of the season samples of the barley grown in these different states were carefully collected and compared with the original seed in the hope of finding a section of the country especially adapted for the growth of this cereal. All samples showed deterioration in quality and appearance except those grown in Montana, which showed wonderful improvement on the imported seed, being fuller, heavier in weight and brighter in color. It has become an important crop in Montana and has been exported in large quantities to England, Germany, Norway, Japan and Australia.

Sample of the Silver Medal Awarded to Montana Exhibitors.

On its first appearance in Europe it created a sensation. In 1893 the Imperial German Government sent a commission to investigate the grain growing regions of the United States. The commission visited various parts of the country including the Gallatin Valley in Montana. Prof. Delbruck, Chief Commissioner of the Department of Agriculture of Germany, was at the head of this commission and says in his report: "Barley that is damaged by rain is unknown here, for there is no rain; withered or dried-up barley is equally unknown for the Gallatin River furnishes water in abundance. A country and a system of cultivation ideal for barley growing; in fact, here I have seen the finest barley grown in the United States. For the most part Saale barley is used for seed and grown with admirable results; bright in color, large in size, fine as to husk, equal to the very best of European barleys, and conspicuously superior among the barleys of North America."

FACTS AS TO QUANTITY.

The awards of prizes prove the quality of the products of the soil of Montana, and the quantity produced per acre is attested by the official figures published by the United States Department of Agriculture. From the Year Book of the Department of Agriculture for 1907 (pages 621 et seq.) the following statistics are taken:

AVERAGE YIELD OF WHEAT IN THE UNITED STATES AND IN MONTANA, 1898 TO 1907.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Average of the United States....	15.3	12.3	12.3	15.0	11.5	12.9	12.5	11.5	15.5	14.0
Average of Montana	29.5	25.7	26.6	26.5	26.0	28.2	23.9	23.8	21.0	28.8

AVERAGE FARM VALUE PER ACRE OF WHEAT IN THE UNITED STATES AND IN MONTANA, 1898 TO 1907.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Average of the United States....	$8.92	$7.17	$7.61	$9.37	$9.14	$8.96	$11.58	$10.83	$10.37	$12.26
Average of Montana	$17.11	$15.63	$16.23	$17.76	$16.12	$18.61	$21.28	$16.90	$15.36	$23.33

AVERAGE YIELD PER ACRE OF OATS IN THE UNITED STATES AND IN MONTANA, 1898 TO 1907.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Average of the United States....	28.4	30.2	29.6	25.8	31.5	28.4	32.1	34.0	31.12	23.7
Average of Montana	40.6	38.0	39.0	42.0	41.9	46.4	37.7	41.3	43.2	49.0

AVERAGE FARM VALUE PER ACRE OF OATS IN THE UNITED STATES AND IN MONTANA, 1898 TO 1907.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Average of the United States....	$7.23	$7.52	$7.63	$10.29	$10.60	$9.68	$10.05	$9.88	$9.89	$10.51
Average of Montana	$14.21	$14.82	$16.38	$15.12	$15.08	$16.24	$17.34	$17.76	$19.01	$22.54

AVERAGE YIELD PER ACRE OF BARLEY IN THE UNITED STATES AND IN MONTANA, 1898 TO 1907.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Average of the United States...	21.6	25.5	20.4	25.6	29.0	26.4	27.2	26.8	28.3	23.8
Average of Montana	36.0	35.0	38.8	39.0	37.0	40.2	29.9	33.0	33.0	38.€

AVERAGE FARM VALUE PER ACRE OF BARLEY IN THE UNITED STATES AND IN MONTANA, 1898 TO 1907.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Average in the United States....	$8.93	$10.28	$8.32	$11.57	$13.28	$12.05	$11.40	$10.80	$11.71	$15.86
Average in Montana	$20.52	$17.85	$18.62	$22.23	$18.87	$23.32	$18.51	$18.48	$18.48	$23.53

Of rye the average yield in bushels of the United States for the years 1901 to 1907 was: 15.3, 17.0, 15.4, 15.2, 16.5, 16.7, 16.4, having a farm value per acre of $7.23, $7.36, $7.73, $8.51, $8.63, $8.39, $10.46, $10.07, $9.83, $11.98. In Montana the average yield in bushels per acre was: 26.7, 25.0, 24.6, 19.9, 20.0, 20.5, 22.0; and the farm value per acre, $16.02, $16.00, $15.50, $15.32, $13.00, $13.53, $15.24.

The average yield per acre of potatoes in the United States 1898 to 1907 in bushels was: 75.2, 88.6, 80.8, 65.5, 96.0, 84.7, 110.4, 87.0, 102.2, 95.4. In Montana the average yield per acre was: 104, 141, 134, 157, 153, 176, 143, 120, 152, 150. The average farm value per acre was in the United States: $31.11, $34.60, $34.78, $50.27, $45.22, $51.09, $49.06, $53.67, $52.29, $58.86.

In Montana the average farm value per acre was: $57.20; $74.73, $71.02, $114.61, $76.50, $77.44, $87.23, $70.80, $92.72, $75.00.

SOME STRIKING CONTRASTS.

For the ten-year period, 1898 to 1907, in the principal wheat producing states the average farm value per acre of wheat was: Minnesota, $8.74; Kansas, $7.56; North Dakota, $7.71; Nebraska, $9.85; Illinois, $10.62. In Montana it was $17.83. In barley, oats, corn, rye, potatoes and hay, Montana leads in a similar proportion. A statistician has compiled from figures published by the Department of Agriculture a table showing that Montana exceeds the average for Minnesota, Illinois, Iowa, Missouri and Nebraska in value of crop at farm per acre as follows: $8.03 per acre in wheat or 83 per cent; $10.09 per acre in barley or 105 per cent; $8.30 per acre in oats or 108 per cent; $5.03 per acre in corn or 51 per cent; $4.70 per acre in rye or

52 per cent; $32.78 per acre in potatoes or 91 per cent; $18.60 per acre in hay or 208 per cent.

The following figures of crops for 1908 were taken from the Crop Reporter published by authority of the Secretary of Agriculture, December, 1908. In 1908 Montana produced 3,703,000 bushels of spring wheat on 153,000 acres which was valued December 1st at 86 cents a bushel which was worth at the farm $3,185,000. The average yield was 24.2 bushels per acre. This is a return of $20.81 per acre. Kansas produced 5.5 bushels per acre of the same crop and Minnesota 12.8.

Of oats Montana produced 10,556,000 bushels on 254,000 acres, which was valued December 1st at 49 cents a bushel, a total of $5,177,000. The average yield was 41.6 bushels per acre and the value per acre was $20.38. In Montana grain is sold by the hundred pounds, and a bushel of oats weighs

from 36 to 44 pounds, 32 pounds being the standard weight in the East. In Illinois, the greatest oat growing state, the average yield per acre was 23.0 bushels of a value per acre of $10.81.

Of barley, Montana produced in 1908, 875,000 bushels. The average yield was 35.0 bushels per acre, valued at 65 cents a bushel, or a value per acre of $22.75. In Minnesota, the greatest barley producing state, the value of the barley crop per acre was $12.25.

Of flaxseed Montana produced 104,000 bushels on 9,000 acres. The average yield per acre was 11.5 bushels, the value per bushel $1.00 and the value per acre $11.50. In North Dakota, the greatest producer of this crop, the average per acre was 9.0 bushels and the average value per acre $10.71.

Montana produced, on 20,000 acres, 2,760,000 bushels of potatoes, an average of 138 bushels to the acre of a value of 70 cents a bushel, or $96.60

A Barley Field.

to the acre. In New York, the greatest potato producing state, the average yield per acre was 82 bushels and the value of the crop per acre $61.50.

In the description of the various counties are some statements of individuals as to crop returns. There have been instances where one year's crops have paid for the land. In more numerous cases the profits of two years' crops have equalled the cost of the farm. Taken as a whole farming in Montana yields greater profits on investments or in returns for labor than, perhaps, anywhere else. A bearing fruit orchard or a well set field of alfalfa is as safe a money yielder as a Government bond.

It is unfortunate that no official figures are available as to the quantity of alfalfa or winter wheat or sugar beets produced. These crops are produced in great quantities and the average yield and farm value per acre are very great. The probability is that winter wheat will become the chief crop of Montana, great sections of the State being already devoted to its production. High as is the average production of the staple crops in Montana, it may seem low to citizens of the State who have personal knowledge of exceptional yields, but they should remember that there are yields in other states much higher than the average and rest satisfied in the knowledge that however great a yield per acre may be shown in any other state, acre for acre, quarter

Potatoes—700 Bushels to the Acre.

section for quarter section, or township for township, Montana can equal it. The average yield shows in ample measure the superiority of Montana as a grain producing state and its future greatness may be guessed at when it is remembered that there are millions of acres of Government land subject to homestead entry of a character similar to that of which the Montana Agricultural Experiment Station has been cultivating test plots of ground. Cultivated in the same manner, these lands would yield crops equal to those produced on the experiment farms or an average yield on non-irrigated land cultivated on the dry farming system as follows: Turkey Red fall wheat, 37.71; Lofthouse fall wheat, 32.24; Gold Coin fall wheat, 37.28; fall rye, 38.27; California barley, 37.56; oats, 31.64, and potatoes, $123.87.

IRRIGATED AND NON-IRRIGATED LANDS.

In portions of Montana the natural rainfall provides sufficient moisture for all crops and it is not found necessary to irrigate lands or to conserve the moisture by the dry farming system of cultivation. But such sections constitute only a small part of the State. Montana is in a region of light rainfall and, generally speaking, for the successful production of crops, it

Modern Methods.

is necessary to supplement the natural rainfall by water brought on the land by means of ditches or to conserve the moisture by the scientific cultivation of the soil by the dry farming methods. Irrigated lands produce the largest crops and never have a crop failure. They are especially adapted for the growth of alfalfa, one of the principal crops of the State, and sugar beets which will become one of the main crops. While yields on non-irrigated lands equal in some cases those on irrigated lands, and while the profits from the cultivation of lands of the latter character are sometimes greater, considering the amount invested, yet there are few of the old-time farmers in Montana who do not prefer irrigated to non-irrigated lands. On the difference between the two systems of cultivation, Prof. Atkinson makes these observations:

"Irrigation means intensive tillage on restricted areas. There are limitations of capital because these lands are high priced and limitations of labor because of the large demands made by intensive methods, the work of applying the water, and the heavy crop production. These restrictions are compensated

by the large acre returns in product, making the handling of large areas unnecessary as well as impracticable.

"On the other hand, dry farming as at present understood involves the handling of a double area. A tract under summer cultivation each season without crops equal to that upon which crops are growing. The yields are generally lighter even with the fallow method than where irrigation waters are used. The labor is also less, so that much greater areas may be annually cropped above the ditch.

"Added to this is the fact that without irrigation ditches the larger power implements of tillage are more adaptable. Plowing, harrowing and harvesting

A Scene Along the Yellowstone River.

may be rapidly accomplished with a minimum of labor. It becomes possible for each man to handle a vastly greater area than he could possibly do under irrigation.

"When the question comes down to the earning capacity of a man, it is an open one whether he can earn more on dry or on irrigated land.

"Land areas are so great that the acre unit does not count for much here. Every man may have all he can take care of. It is not a race to see how many people can live on an acre as in China, India or Germany. How many persons can an acre support is not a Montana question, nor will it be for many years to come. The real question is, "How much can a farmer earn?" Give him all the land he can handle, how much can he earn? Can he earn more on irrigated land or above the ditch?

"There is plenty of room for argument on both sides of this question, and there will be plenty of room for demonstration and trial in Montana for years to come."

The soil of Montana is practically perfect and this, with an abundance of sunshine and water for irrigation, makes up an ideal condition for crops.

The soil contains the necessary chemical elements for plant life, water is the element which dissolves the chemicals and sunshine supplies the mysterious power by which these elements are conveyed to the plant. The irrigation farmer, by controlling his water supply, receives the greatest benefit from the three elements. He may control them, and with as certain results as can the owner of a factory who employs his tools to bring forth a finished product. In other words, the irrigation farmer scientifically manufactures his products.

The key to the great advantage of irrigation farming lies in the power to regulate the quantity of water supplied and its application to a growing crop at the right time. For instance, a crop of oats, given all the water it will use in its early stages of growth, will fairly run riot in its production

Plowing By Steam Power.

of straw. It grows entirely unmindful of its duty to its kind in the matter of self-perpetuation by raising a seed head. Give it all the soil, sunshine and water it can use and it will produce an excess of straw. The irrigation farmer permits his oats, or other grain crop, to expend its energies in producing straw to a certain point, then he shuts off the supply of water and the plant's instinct warns it to begin to throw out a seed head. When the head is fairly started he waters the plant again and stimulates its energies in that direction to its utmost capacity. The result is, not an excessive amount of straw, but long, well-filled seed heads, and the grain thus produced weighs more to the measured bushel than usual.

IRRIGATION AND ITS DEVELOPMENT.

Carey Land Act Projects.

Farming in Montana began with irrigation, and the valleys, large and small throughout the State, have been irrigated wherever feasible by individual or co-operative effort. The increase in the acreage of land irrigated by private enterprise, however, did not keep pace with the requirements of an increasing population and action of some sort by the State or National Government was felt to be necesary for the development of the semi-arid region, and accordingly Congress enacted a law known as the "Carey Act". This law is now being applied intelligently and with great success to the reclama-

tion of many thousands of acres of land in Montana. The purpose of the act was to induce the various states in the semi-arid regions to inaugurate systems of irrigation on unappripriated Government land. Upon the completion of these projects patent to the land is issued directly to the State and from it to the settler. In all cases the Government was held inviolate for any bonds or liens against the property, while the settler was guaranteed full possession of his land and water right.

Two Views of An Irrigating System.

The following projects under the act have been completed in whole or in part: The Big Timber project, in Sweet Grass County, containing 28,000 acres, information in regard to which may be had by addressing Glass Bros., Big Timber, Montana; The Billings Land and Irrigation Co., Yellowstone County, 28,000 acres, address the Billings Land and Irrigation Co., Billings, Montana; The Conrad project, Teton County, 160,000 acres, address the Conrad Land Co., Conrad, Montana; The Dearborn project, Lewis and Clark County, 36,000 acres, address The W. J. Dermody Investment Co., Omaha, Nebraska.

Lands under these projects vary in price from $20.50 to $50.00 an acre. These lands are usually sold on long term payments, and in all cases under the Carey Act the land and the water system will eventually pass to the ownership and managment of those who settle upon and pay for it.

When the land is all sold the construction company passes out of existence and at no stage of the proceedings does title to the land pass other than to the State and to the settler. These projects are all under the supervision of state officers who satisfy themselves that it is absolutely certain that there is sufficient water to subserve all the land and that the construction work is thoroughly done before they permit the offering for sale of any part of the land.

However, the demand for irrigated land was unsatisfied. The Carey Act only partly relieved the situation. As time went on and the opportunities for private irrigation enterprises became more and more restricted by reason of increasing settlement and consequent appropriation of available water in the smaller and more accessible streams, the apparent limit of irrigable land was reached. It became necessary to secure large capital to undertake irrigation projects on a large scale, projects too expensive for private individuals or corporations. From this situation two factors of prime importance in the development of the State have sprung: First, the Government reclamation projects; and second, dry land farming.

Government Reclamation Projects.

The Government reclamation projects are the result of the passage of the Newlands Irrigation Act, which became a law June 8, 1902. The bill creates a reclamation fund for the sale of public lands in Montana and other Western states, which is to be used for the reclamation of public lands in the states contributing to it. The Secretary of the Interior has withdrawn from the operation of the public land laws the lands to be reclaimed by these various projects and title to them can only be secured in accordance with rules made by him under authority of the act. All settlers must make homestead entries of these lands and comply with the law as to settlement, cultivation and residence as in other cases and in addition must pay the pro rata cost of the water rights. These irrigated lands have been divided into farm units which vary in size from forty to one hundred and sixty acres.

When the land to be reclaimed is in the ceded portion of an Indian reservation the cost price to the settler includes not less than four dollars an acre which is paid to the Indians in addition to the pro rata cost of canal construction. This makes the selling price from $30 to $35 per acre, and the payments are made in ten annual installments. As the prices, terms and conditions of sale are not alike in all cases, those interested are advised to apply for information to the United States Reclamation Service at Washington, D. C., to H. N. Savage, Supervising Engineer, U. S. Reclamation Service, Helena, Montana; to the officer in charge of any project; to the United States Land Offices at Billings for the Huntley project; at Miles City for the Lower Yellowstone project; at Great Falls for the Sun River project and at Glasgow for the Milk River project. These projects offer opportunities to secure extremely valuable lands at low prices on long term payments. The Government reclamation projects in Montana are: Blackfeet, Flathead, Fort Peck, Huntley, Lower Yellowstone, Milk River, Sun River and St. Mary.

The Blackfeet project will reclaim 88,000 acres and it is expected to be opened some time in 1910. The expenditures to July 1, 1909, have been about

$150,000. The cost of the land and the terms on which it will be sold have not been announced. These lands are in Teton County and are well suited for the growth of alfalfa, grain and vegetables.

The Flathead project provides for the reclamation of 130,000 acres of ceded lands in the Flathead Reservation. The expenditures to July 1, 1909,

The Snow That Makes The Water That Makes The Crops That Makes The Farmer That Montana Built.

are estimated at $125,000. The cost of the land and the terms of payment have not been announced. It is expected that the Jocko, Mission and Polson first units will be opened in 1910. This land is well adapted for the growth of grain, alfalfa, vegetables and fruits.

The Fort Peck project will reclaim 125,000 acres of land in Valley County; $25,000 have been expended to date but the work has not progressed far enough to expect the opening of these lands to occur before 1912.

The Huntley project which reclaimed 28,921 acres was opened June 26, 1907. The project is divided into 535 farm units containing from 30 to 160 acres of which 30 to 80 acres are irrigable land and the balance adjacent pasture or wood land.

The circular of the Reclamation Service on the Huntley project explains how these lands can be secured:

"The lands can be taken by homestead entry and commutation is not allowed, but soldiers and sailors may have their terms of service deducted. There will be a building charge of $30.00 per acre, payable in not less than five or more than ten annual installments, without interest, and an annual maintenance charge. This charge is 60 cents per acre the first year and it is

expected that it will be materially reduced in subsequent years. There is also a charge of $4.00 per acre for the land, payable $1.00 on filing and $3.00 in four equal annual installments beginning at the end of the second year, this for the benefit of the Crow Indians. Thus, a total first payment of $4.60 per acre is required at the time of filing. When the payments have all been made the management of the canal system will be turned over to the water users, who will thenceforth operate and maintain it." These lands are close to Billings, are adapted to the growth of sugar beets for sale to the sugar beet factory at Billings as well as for other crops. It is understood at this writing that a few of these farms have not yet been disposed of.

The Lower Yellowstone project was opened in the spring of 1909. The number of acres reclaimed are 66,250 and the cost of land per acre is $42.50 in ten annual payments. The lands are in Dawson County, and the crops which may be raised on them are alfalfa, wheat, oats, barley, sugar beets, vegetables and deciduous fruits. The Northern Pacific Railway also offers for sale land within this project, information concerning which can be had on application to the Land Commissioner of the Northern Pacific Railway Co., St. Paul, Minn.

The largest reclamation project which the Government has undertaken in Montana is the Milk River project. The soil of the Milk River Valley through its course of 150 miles, is very fertile, and comprises more than a million acres of arable land, a large part of which is susceptible of irrigation. The surveys made for the projects now under construction indicate that 249,000 acres may be reclaimed under the plan now being pursued or by an extension of it. The expenditure to July 1, 1909, has been approximately $332,000. About 275 miles of canals have been constructed.

In the Dodson unit are about 158,000 acres, and it is expected that this unit will be opened in the spring of 1910. The cost of the land has not been announced. It is probable that the ten yearly installment plan of payments will be adopted. The land is well suited for the growing of sugar beets, grain, vegetables, hay and alfalfa.

The St. Mary project provides for the reclamation of 100,000 acres in Teton County. To July 1, 1909, about $250,000 had been expended. No announcement has been made of the probable date of opening, of the cost of the land, or terms of payment.

The Sun River project has for it purpose the reclamation of 276,000 acres of land near Great Falls. To July 1, 1909, $540,000 has been expended. The Fort Shaw unit of this project was opened in 1908. In it were 204 farms, subject to homestead entry under the Reclamation Act, varying in size from 40 to 168 acres. The smallest area irrigable on any farm is 25 acres and the largest 115; the average size of the farms is 88 acres, of which 61 acres is the average irrigable portion. The terms announced by the Secretary of the Interior are that the construction cost re-payable is $30 per irrigable acre divided into not less than five or more than ten annual payments. The land is suitable for the growth of sugar beets, alfalfa, hay, grain, and vegetables. The proximity of these lands to Great Falls make them very desirable. Those who wish to learn if any of these farms have not been

disposed of should apply to the U. S. Reclamation Service at Washington, D. C.; to the engineer in charge at Fort Shaw, Mont., or to the Land Office at Great Falls.

DRY LAND FARMING.

The importance to the development of Montana of dry land farming has been recognized by the authorities of the State, and the information contained herein has been compiled from publications issued by the Montana Agricultural Experiment Station at Bozeman, which will answer inquiries concerning any question that may arise as to the application of this method of cultivation to Montana soils and climatic conditions. Two valuable publications have been issued by the Montana Experiment Station at Bozeman. One is "Dry Land Farming and Kindred Topics," being Montana Farmer's Bulletin No. 1, and the other "Dry Farming Investigations in Montana," being Bulletin No. 74, of the Montana Agricultural Experiment Station.

The successful cropping of the farming lands in the arid and semi-arid regions of the United States is by no means a new question. In Montana dry land farming has been carried on for years in a few sections. In Flathead County is probably the largest area of land cropped without irrigation in the State. In Cascade, especially on the high lands, out toward the Belt and Highwood mountains, in Gallatin County at the foot of the Gallatin and Bridger mountains, on the high plateau of Fergus County, and in other portions of the State very successful results were obtained by dry land methods of farming before the subject became one of general public interest. In the past few years the demonstration that crops can be profitably raised in the semi-arid region on lands to which it is not feasible to bring water for irrigation has been brought about by the united efforts of public spirited citizens, railroad corporations, the state governments and the United States Department of Agriculture. With these experiments and the origin and development of the science of dry land farming the name of Mr. H. W. Campbell, of Lincoln, Nebraska, is honorably and inseparably linked.

No one should think that dry farming means farming without water. That would be impossible, as all life, animal and vegetable, is dependent upon water for its existence and the absence of water means death. In the sense

of dispensing with water entirely in the conduct of farm operations the term dry farming is a misnomer. The term means farming in semi-arid regions with only the moisture of natural precipitation. The expression "farming above the ditch" also conveys the idea to those who have lived in a section where irrigation is practiced. Dry farming is not an absolute term, but merely relative and is contrasted with humid or semi-humid agriculture. Generally speaking dry farming applies to conditions of less than twenty inches of annual precipitation; and it is very obvious that below this amount the greater the precipitation the more certain is successful tillage. As the point of no rainfall is approached, production rapidly diminishes until it ceases entirely. In Montana dry farming means tillage with from ten to eighteen inches of annual rainfall. "There is another peculiarity of Montana rainfall," says Director Linfield of the Montana Experiment Station, "that is interesting and of special importance to the dry land farmer. On the coast the season of greatest rainfall is during the winter season, the lighter rainfall coming in the months of June, July and August. East of the Cascades, though the rainfall is less, the winter and spring are also the wettest seasons and the summer and early fall are dry. Coming now east of the Rocky Mountains we find the maximum rainfall comes during the late spring and early summer months. In a measure, the rainfall of this region is complementary to that of the coast. The importance of this fact agriculturally and to our dry farm work is that the season of maximum rainfall is at the season of the year when it is of the greatest value for the growth of the crops, viz., April, May, June, and July. During these months we get nearly as much rainfall as in the humid districts of the East."

It has been observed, further, that Montana has a heavier sod, and better growth of grasses than any of the states to the south; and that farming without irrigation is successful in Dakota and in the Canadian provinces where the rainfall is no greater than in Montana and where the climate and soil are not so good. The U. S. Weather Bureau also points out that the probabilities for normal rainfall are ten per cent better in Montana than in states to the south of it and that here the rains are more frequent and periods of dry weather shorter—factors very favorable to the dry land farmer.

STATE EXPERIMENT FARMS.

Investigations to determine some of the farming possibilities of the non-irrigated level lands of Montana were started during the spring of 1905 by the Montana Agricultural Experiment Station. Experiment farms have been established in Dawson, Rosebud, Yellowstone, Cascade, Chouteau and Fergus counties. "The aim in taking up this line of experimentation," says Prof. Atkinson, in Bulletin 74 of the Montana Experiment Station, "was not to test all of the different crops and soil culture methods that might be proposed but rather by using a few of the most promising crops handled in the best known manner, to determine if crop returns were possible on the non-irrigated lands of Montana. This accounts for the fact that results are reported along but few lines at this time. These few results, however, furnish an answer to the general question by indicating that profitable crops can be raised on the level lands of Montana without the aid of irrigation."

The bulletin says further, "the plats on which the tests were conducted were one-half acre in size. In all the grain tests excepting those designed to test different methods of planting, the grain was planted with an ordinary press disk drill. Spring sown crops were planted as early as the ground was in condition in the spring, while fall sown crops were planted during the last half of August or the first ten days of September in almost all cases. Outside of the crops grown on new breaking and the continuous cropping tests, all grain was planted on ground that was summer fallowed the year previous. In the variety and rates of seeding tests the yields reported are from crops grown under the system of alternate grain and fallow. The crops were harvested with the binder and all threshing was done with an Ellis Keystone thresher, with 24-inch cylinder, driven by a 6-horsepower gasoline engine."

The Fergus County station was so recently established that no reports of its operations have been made, but the following tables show the results of dry farming at the other experiment farms:

CASCADE COUNTY SUB-STATION—Results for the Season of 1908.

Variety of Grain Used	Pecks seed used per acre	Experiment	Yield of grain per acre—Bushels.
Kubanka spring wheat	3	Variety Test	12.83
Ghirka spring wheat	3	" "	16.93
Glyndon spring wheat	3	" "	12.77
Sixty day oats	4	" "	21.75
Canadian white oats	1	" "	20.00
White hulless barley	3	" "	15.57
California barley	3	" "	12.08
Flax	2	" "	10.29
Kubanka spring wheat	2	Rates of Seeding	7.73
" " "	4	" " "	8.83
" " "	6	" " "	8.80
" " "	8	" " "	12.33
Sixty Day oats	2	" " "	20.13
" " "	4	" " "	18.25
" " "	6	" " "	22.13
" " "	8	" " "	21.50
White hulless barley	2	" " "	12.73
" " "	4	" " "	17.07
" " "	6	" " "	20.43
" " "	8	" " "	19.87
Turkey Red fall wheat	3	" " "	10.00
" " " "	5	" " "	10.40
" " " "	8	" " "	11.97
Fall rye	2	" " "	9.39
" "	4	" " "	10.93
" "	6	" " "	8.71
" "	8	" " "	9.86
Kubanka spring wheat	3	Planted in rows and cultivated	10.20
" " "	3	Planted with seed drill	12.87

CHOUTEAU COUNTY SUB-STATION—Results for the Years 1906 to 1908, Inclusive.

Variety of Grain Used	Pecks seed used per acre.	Experiment	Yield of Grain per Acre				
			1906	1907	1908	Total	Avg.
			Bu.	Bu.	Bu.	Bu.	Bu.
Kubanka spring wheat	3	Continuous Cropping	.....	24.03	4.33	28.36	14.18
Sixty Day oats	3	" "	.....	50.31	7.50	57.81	28.90
White hulless barley	3	" "	33.90	25.37	1.20	60.47	20.16
Spring rye	3	" "	14.42	16.64	6.61	37.67	12.56
White hulless barley	3	Variety Test	.....	.....	7.87	.....	7.87
California barley	3	" "	.....	.....	13.71	.....	13.71
Sixty Day oats	3	" "	.....	.....	27.06	.....	27.06
Canadian White oats	3	" "	.....	54.50	26.25	80.75	40.38
Flax	12	" "	6.43	14.04	5.21	25.68	8.56
Potatoes		" "	89.87	67.97	108.50	266.34	88.78
Canadian field peas	3	" "	.....	.....	2.83	.....	2.83
Kubanka spring wheat	3	Rates of Seeding	.....	22.07	12.63	34.70	17.35
" " "	5	" " "	.....	28.60	14.20	42.80	21.40
" " "	8	" " "	.....	25.30	15.27	40.57	20.29
Sixty Day oats	3	" " "	32.50	48.81	22.38	103.69	34.56
" " "	5	" " "	38.75	51.81	26.28	116.84	38.98
" " "	8	" " "	21.90	48.37	19.13	89.40	29.80
White Hulless barley	3	" " "	.....	25.90	8.00	33.90	11.95
" " "	5	" " "	.....	27.50	8.53	36.03	18.02
" " "	8	" " "	.....	28.13	8.93	37.07	18.53
Turkey Red fall wheat	2	" " "	.....	37.18	16.63	53.81	26.90
" " " "	3	" " "	.....	35.02	.....	.....	35.02
" " " "	4	" " "	.....	31.25	16.63	50.88	25.44
" " " "	6	" " "	.....	35.02	18.13	53.15	26.58
" " " "	8	" " "	.....	29.50	16.60	46.10	23.0
Fall rye	2	" " "	.....	11.14	.....	.....	11.14
" "	4	" " "	.....	15.42	.....	.....	15.43
" "	6	" " "	.....	14.71	.....	.....	14.71
" "	8	" " "	.....	23.61	.....	.....	23.61
Turkey Red fall wheat	3	Seeded Aug. 24, 1906	.....	25.10	.....	.....	25.10
" " " "	3	Seeded Oct. 4, 1906	.....	28.96	.....	.....	28.96
" " " "	3	Grain harrowed in spring	.....	.....	16.00	.....	16.00
" " " "	3	Grain not harrowed in spring	.....	.....	19.43	.....	19.43
Kubanka spring wheat	3	Planted in rows and cultivated	.....	.....	5.13	.....	5.13
" " "	3	Planted in ordinary way with drill	.....	.....	5.00	.....	5.00

DAWSON COUNTY SUB-STATION—Results for the Years 1905 to 1908, Inclusive.

Variety of Grain Used	Pecks seed used per acre.	Experiment	Yield of Grain per Acre. 1905	1906	1907	1908	Total	Avg.
			Bu.	Bu.	Bu.	Bu.	Bu.	Bu.
Kubanka spring wheat	3	Continuous Cropping	20.30	29.57	19.05	11.33	80.25	20.06
Sixty Day oats	3	" "	39.00	42.77	35.84	26.50	144.11	36.03
White Hulless barley	3	" "	18.88	28.04	16.30	15.63	78.85	19.71
Spring rye	3		.....	26.10	17.40	10.93	53.43	17.81
Turkey Red fall wheat	3	Variety Test	.....	.....	.....	36.63	.....	36.63
Gold Coin fall wheat	3	" "	.....	.....	.....	31.60	.....	34.60
Lofthouse fall wheat	3	" "	.....	.....	.....	28.80	.....	28.80
Fall rye	3	" "	.....	32.50	.....	.....	32.50	32.50
Sixty Day oats	3	" "	.....	.....	.....	51.00	.....	51.00
Canadian white oats	3	" "	.....	.....	.....	46.25	.....	46.25
White Hulless barley	3	" "	.....	.....	.....	20.90	.....	20.90
California barley	3	" "	.....	.....	.....	22.85	.....	22.85
Flax	2	" "	.....	.....	13.25	14.86	28.11	14.06
Speltz	3	" "	27.70	.....	.....	.....	.....	27.70
Potatoes			147.56	.....	.....	.....	.....	147.56
Kubanka spring wheat	2	Rates of Seeding	.....	.....	.....	.....	.....	14.67
" " "	4	" " "	.....	.....	.....	17.57	.....	17.57
" " "	5	" " "	.....	.....	.....	21.63	.....	21.63
" " "	8	" " "	.....	.....	.....	28.33	.....	28.33
Sixty Day oats	2	" " "	.....	.....	.....	19.50	.....	19.50
" " "	4	" " "	.....	.....	.....	18.25	.....	18.25
" " "	6	" " "	.....	.....	.....	18.88	.....	18.88
" " "	8	" " "	.....	.....	.....	31.81	.....	31.81
White Hulless barley	2	" " "	.....	.....	.....	29.47	.....	29.47
" " "	4	" " "	.....	.....	.....	28.90	.....	28.90
" " "	6	" " "	.....	.....	.....	27.93	.....	27.93
" " "	8	" " "	.....	.....	.....	19.83	.....	19.83
Turkey Red fall Wheat	2	" " "	.....	.....	.....	39.53	.....	39.53
" " " "	3	" " "	.....	.....	.....	38.67	.....	38.67
" " " "	4	" " "	.....	.....	.....	40.80	.....	40.80
" " " "	6	" " "	.....	.....	.....	40.97	.....	40.97
" " " "	8	" " "	.....	.....	.....	44.03	.....	44.03
Fall rye	2	" " "	.....	.....	.....	33.82	.....	33.82
" "	4	" " "	.....	.....	.....	38.11	.....	38.11
" "	6	" " "	.....	.....	.....	40.71	.....	40.71
" "	8	" " "	.....	.....	.....	38.75	.....	38.75

ROSEBUD COUNTY SUB-STATION—Results for the Years 1906 to 1908, Inclusive.

Variety of Grain Used	Pecks seed used per acre.	Experiment	Yield of Grain per Acre. 1906	1907	1908	Total	Avg.
			Bu.	Bu.	Bu.	Bu.	Bu.
Kubanka spring wheat	3	Continuous Cropping	12.31	29.83	4.13	46.27	15.42
Sixty Day oats	3	" "	35.13	51.62	8.87	95.62	31.87
White Hulless barley	3	" "	21.74	24.70	5.33	54.77	18.26
Spring Rye	3	" "	14 00	26.34	6.64	46.98	15.66
Turkey Red fall wheat	3	Variety Test	.....	58.17	42.10	100.27	50.14
Lofthouse fall wheat	3	" "	.....	47.30	36.60	83.90	41.95
Gold Coin fall wheat	3	" "	.....	54.77	38.47	93.24	46.62
California barley	3	" "	.....	.....	34 38	.....	34.38
Flax	3	" "	16.09	12.70	10.57	39.27	13.09
Potatoes		" "	.....	160.70	.....	.....	160.70
Sugar beets		Drilled in for fodder	.....	* 6.28	.....	.....	* 6.28
Corn		Rates of Seeding	.....	.....	* 4.41	.....	* 4.44
Kubanka spring wheat	2	" " "	13.30	28.60	14.20	56.10	18.70
" " "	3	" " "	11.93	31.10	19.36	62.39	20.80
" " "	4	" " "	11.21	30.10	16.73	58.04	19.35
Sixty Day Oats	2	" " "	36.90	58.75	24.44	120.09	40.03
" " "	3	" " "	32.24	63.56	.....	95.80	47.90
" " "	4	" " "	36.42	57.06	23.94	117.42	39.14
White hulless barley	2	" " "	23.08	33.33	28.53	84.94	28.31
" " "	3	" " "	21.77	32.90	31.27	85.84	28.61
Turkey Red fall wheat	2	" " "	.....	41.20	43.67	84.87	42.44
" " " "	3	" " "	.....	40.93	49.93	90.86	45.43
" " " "	4	" " "	.....	40.00	47.30	87.30	43.65
" " " "	5	" " "	.....	38.80	53.20	92.00	46.00
Fall rye	2		.....	29.70	36.86	66.56	33.28
" "	3		.....	31.07	32.57	63.64	31.82
" "	4		.....	31.85	31.21	63.06	31.53
" "	5		.....	32.50	29.20	61.70	30.85
Turkey Red fall wheat	3	Planted in rows and cultivated	.....	35.10	34.07	69.17	34.51
" " " "	3	Planted with drill	.....	.....	42.40	.....	42.40
" " " "	3	Ground plowed previous fall	.....	.....	46.73	.....	46.73
" " " "	3	Ground plowed same spring	.....	.....	45.90	.....	45.90
Kubanka spring wheat	3	Fallow cultivation previous spring	.....	.....	19.93	.....	19.93
" " "	3	Fallow cultivation previous season	.....	.....	16.50	.....	16.50
Brome grass		Forage production	.....	.....	* 1.40	.....	* 1.40
Tall oat grass		Forage production	.....	.....	* 1.08	.....	* 1.08

YELLOWSTONE COUNTY SUB-STATION—Results for the Years 1907 and 1908.

Variety of Grain Used	Pecks seed used per acre.	Experiment	Yield of Grain per Acre. 1907	1908	Total	Avg.
			Bu.	Bu.	Bu.	Bu.
Kubanka spring wheat	3	Continuous Cropping	26.37	7.73	34.10	17.05
Sixty Day oats	3	" "	45.00	13.75	58.75	29.38
White Hulless barley	3	" "	33.12	14.90	48.02	24.01
Spring rye	3	" "	23.35	9.82	32.17	16.09
Turkey Red fall wheat	3	Variety Test	.....	29.03	.....	29.03
Lofthouse fall wheat	3	" "	.....	25.97	.....	25.97
Gold Coin fall wheat	3	" "	.....	30.63	.....	30.63
Canadian white oats	3	" "	....	19.88	.....	19.88
White hulless barley	3	" "	.....	12.33	.....	12.33
California barley	3	" "	.....	11.67	.....	11.67
Flax	1	" "	...	2.04	.....	2.04
Potatoes		" "	.....	98.43	.....	98.43
Sugar Beets		" "	.....	7.00 T	.....	7.00 T
Corn for fodder		" "	.....	2.90T	.....	2.90T
Kubanka spring wheat	2	Rates of Seeding	27.33	8.33	35.66	17.83
" " "	4	" " "	27.63	10.00	38.63	19.32
" " "	6	" " "	.....	10.50	10.50	10.50
" " "	8	" " "	26.77	10.17	36.94	18.47
Sixty Day oats	2	" " "	47.31	35.94	83.25	41.63
" " "	4	" " "	52.69	43.19	95.88	47.94
" " "	6	" " "	.....	39.38	39.38	39.38
" " "	8	" " "	52.60	32.94	85.58	42.77
White Hulless barley	2	" " "	39.71	18.83	58.54	29.27
" " "	4	" " "	.....	20.33	20.33	20.33
" " "	6	" " "	39.69	21.13	60.82	30.41
" " "	8	" " "	32.50	21.67	54.17	27.09
Turkey Red fall wheat	2	" " "	.....	23.20	.....	23.20
" " "	3	" " "	.....	27.83	.....	27.83
" " "	4	" " "	.....	25.93	.....	25.93
" " "	6	" " "	.....	27.33	.....	27.33
" " "	8	" " "	.....	29.46	.....	29.46
Fall rye	2	" " "	.....	36.25	.....	36.25
" "	3	" " "	.....	34.11	.....	34.11
" "	4	" " "	.....	41.79	.....	41.79
" "	6	" " "	.....	42.66	.....	42.66
Brome grass		Forage Production	...	1.00 T	.....	1.00 T
Tall oat grass		" "	...	1.00 T	.....	1.00 T
Alfalfa		" "	...	.67	.....	.67

YIELDS OF DIFFERENT KINDS OF GRAIN—Average Results from all Stations for all Years Tested.

Crop	Variety	Period of Growth—Days	Bushels Per Acre						
			Dawson County	Rosebud County	Yellowstone County	Cascade County	Chouteau County	Total	Average
Fall wheat	Turkey Red	320	36.63	50.41	29.03	.....	35.02	150.82	37.71
" "	Lofthouse	320	28.80	41.95	25.97	.....	.....	96.72	32.24
" "	Gold Coin	321	34.60	46.63	30.63	.....	.....	111.85	37.28
Fall rye	Common	328	32.50	31.82	34.11	.....	15.43	113.86	28.47
Spring wheat	Kubanka	100	17.57	20.80	19.32	12.83	21.40	91.92	18.38
" "	Ghirka	109		.....	.....	16.93	.....	16.93	16.93
" "	Glyndon	109		.....	.....	12.77	.....	12.77	12.77
Barley	White Hulless	95	20.90	28.31	12.23	15.57	11.95	89.06	17.81
"	California	97	22.85	34.38	11.67	12.08	13.71	94.69	18.94
Oats	Sixty Day	98	51.00	40.03	47.94	21.75	27.06	187.78	37.56
"	Canadian White	99	46.25	.....	19.88	20.00	40.38	126.51	31.63
Flax	Common	105	14.06	13.09	2.04	10.29	8.56	48.04	12.01
Grasses	Brome	81		1.10	1.00	.....	.....	2.10	1.20
"	Tall oat	75		1.08	1.00	.....	.....	2.08	1.04
Alfalfa	Common			.....	.67	1.26	.....	1.93	.97
Potatoes	Mill's Prize	151	147.56	160.70	98.43	.....	88.78	495.47	123.87
Sugar Beets	Kleinwanzlebener	184		6.28 T	7.00 T	.....	.....	13.28	6.64 T
Corn for fodder	Western Dent			4.44 T	2.90 T	.....	.....	7.34	3.67 T

PRECIPITATION RECORDS.

Month	Dawson County			Rosebud County			Yellowstone County			Cascade County			Chouteau County		
	1907	1908	Normal	1907	1908	Normal	1907	1908	Normal	1907	1908	Normal	1907	1908	Normal
January	.65	.37	.81	1.70	.46	.62	.52	23	.81	1.78	.77	.61	.00	.16	.09
February	.42	.76	.65	.84	.30	.56	.34	.57	.39	.26	.62	.49	.80	.75	.47
March	.45	.18	1.24	.75	.90	.76.	.83	.73	1.11	.95	2.27	.70	.40	1.70	.48
April	.20	.35	1.11	.47	1.22	1.18	.29	.40	1.25	.90	.47	1.08	.41	.54	1.01
May	2.37	1.51	2.32	4.47	2.64	1.98	2.62	6.56	3.06	1.74	4.62	2.58	2.33	.41	2.09
June	2.48	3.54	3.44	3.39	2.26	2.77	4.20	1.94	2.84	7.46	4.22	3.28	4.65	3.45	1.82
July	1.36	1.24	1.66	1.10	.28	1.37	2.16	.00	.81	2.09	.43	1.50	2.57	1.90	1.92
August	2.05	.61	.97	1.00	.47	1.03	1.69	1.70	1.10	2.67	3.13	.85	1.84	1.31	1.26
September	*	1.43	1.10	.21	1.10	.92	.55	.24	.04	.25	2.58	.88	.93	.62	1.03
October	*	1.59	.77	.47	1.71	.78	40	2.74	1.02	.10	2.51	.46	*	.55	.50
November	.16		.65	.00		60	.04		1.21	*		.83	.00		.77
December	.46		.70	.28		.62	.03		.32	.52		.56	.30		1.63
Annual	10.60	11.58	15.42	14.68	11.34	13.19	13.67	15.11	14.66	18.72	21.62	13.82	14.23	11.39	13.67

*Trace

HOW TO WIN SUCCESS.

"Conservation of moisture through improved methods of tillage is the crowning triumph of the age," writes an enthusiastic and successful dry farmer, and the subject is of such importance to Montana that it is a matter of regret that the observations, cautions and suggestions as to preparing, seeding and cultivating the soil, and the crops that yield best returns, contained in the two bulletins of the Agricultural Experiment Station cannot be reproduced here in full.

Glazier In Flathead County.

The new law increasing the size of a homestead in the semi-arid region to 320 acres fits in with this method of farming, which requires half of the soil to be uncropped each year. He who intends to pursue dry farming in Montana is advised to inform himself of the methods of cultivation that produce best results and to follow them closely. If this should be done by the thousands of settlers who are beginning dry farming in this State they may expect to succeed; but if they neglect to take advantage of the lessons taught by the experiments conducted by the State of Montana for the benefit of intending settlers, the responsibility for any lack of success that may attend their efforts must rest upon themselves alone.

Inquiries have been made by the Montana Agricultural Experiment Station regarding the amount of money the settler ought to have to meet the demands upon him when taking up a dry farm. Seventy farmers were questioned and the amounts mentioned by them ranged from $500 to $6,500 with an average of approximately $1,000 as the minimum amount necessary to properly start an average dry farm homestead. No one, therefore, is urged to come to Montana to engage in farming who is not able to provide for his support until after his first harvest.

Those who wish to visit the State and look into its opportunities will find that the railroads have on sale homeseekers tickets at reduced rates.

AGAIN, THE COMMONWEALTH.

Much Has Been Accomplished in Building up the Commonwealth but More Remains to be Done to Develop Its Resources—Here is a Land of Opportunities Unequalled and Wealth Ungathered.

Montana lies between the 104th and 116th meridians west from Greenwich and between the 45th and 49th parallels north latitude. Its average length east and west is about 535 miles and its width north and south about 275 miles. Montana is big. Do you realize how large? Here is a table of comparisons in square miles:

Ohio, Indiana & Illinois	134,060	MONTANA—146,572.
Kentucky, Tennessee & Georgia	141,925	
Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York and Pennsylvania	150,850	
Great Britain and Ireland	121,390	
France	207,054	
Germany	208,800	

Montana has an area of 146,572 square miles, including a water surface of 770 square miles. About one-third of the total area may be designated as mountain land being occupied by the Rocky Mountains and the lesser spurs and ranges. The remaining two-thirds is divided, perhaps, about equally between grazing and farming lands.

Avalanche Basin, Glacier Park

The total number of acres in Montana is 93,806,080, the water surface is 509,440 acres and land surface 93,296,640.

Thirty million acres may be designated in a rough estimate, as mountain lands. Forest reserves embrace over 20,000,000 acres including some lands of an agricultural character, some lands covered by timber not of a merchantable character, and some barren mountain peaks. It has been estimated that Montana contains 12,000,000 acres of timber lands.

THE TREASURE VAULT OF THE TREASURE STATE.

The mountain area is interspersed with productive valleys in which are located some of the principal cities of the State. It is the treasure vault of the Treasure State, in which are found gold, silver, lead, copper, coal, iron manganese, marble, onyx, building stone, asbestos, graphite, corundum, petroleum, even precious stones—the sapphire, the ruby and the garnet. In this region are found the great forests of Montana, one of the chief assets of the State.

In the mountain region are many mineral and thermal springs whose waters are beneficial in the treatment of various diseases. Some of these are near railroad stations, have ample accommodations for visitors and are largely frequented. There are other springs which are remote from railroads and whose merits will become better known when improved transportation facilities permit easier access to them.

The mountains contain wood and water which are essential for mining operations and prospecting, great parks affording splendid pasturage for stock; they harbor the game the hunter and fisherman seek, and their grand and picturesque scenery appeals to lovers of the sublime and beautiful. All the mountain ranges are storage places for rain or snow, as, indeed, are many of the coulees into which snow drifts, and yield their moisture for fertilizing the low lands at varying periods. The waters of Montana do not go off in great floods. In the highest ranges are glaciers and fields of perpetual ice and snow. The snow that falls in winter melts at different times in different altitudes thus ensuring a steady flow of water at all times of the year. From every mountain issue beautiful streams "pure, clear, cold, they come dashing from the mountains, making their way seaward with a fall unknown in lower altitudes." The fall of the streams makes irrigation easy and irrigating canals have been constructed at low cost. The streams are rapid and the falls furnish an abundance of water power for generating electricity.

WATER POWER.

This vast power is utilized at certain places on a large scale; but there are a great many sites suitable for the construction of electric power plants, which are not occupied. A survey of the resources of Montana in this respect would perhaps show that no town or place in the State is so distant from a source of supply that it cannot be furnished with electric light and power at a low cost. Great electric power plants have been constructed at the Madison Canyon and at Canyon Ferry on the Missouri River at Helena. Power is transmitted to Butte and other places. The Great Falls of the Missouri River near the city of Great Falls will be utilized on a large scale by a company which has begun operations and smaller plants than those named have been constructed or are projected. The abundance of water power for generating electricity is one of the great undeveloped resources of Montana.

But the greatest of all resources of the mountain region are the deposits of placer gold and the veins of gold and silver and lead and copper which have been found in the main range of the Rocky Mountains and in outlying chains and spurs and have made Montana famous throughout the world for its mineral wealth.

CHARACTER OF LANDS.

Deducting the mountain area from the total there are left 63,000,000 acres of lands for grazing and farming. These have been roughly classified as grazing lands 45,000,000; farming lands, 18,000,000 acres; but while there are large areas which may be definitely classified as farming lands and other areas which owing to topographical and other conditions are only adapted for grazing, in view of the experience of Montana farmers in recent years on lands supposed to be fitted only for grazing, it is difficult to say in many cases whether lands suitable for grazing are not also suitable for farming. But the matter is not of present importance for, after deducting the

Rainbow Falls of the Missouri River at Great Falls.

lands in private and State ownership, and those in Indian, forest and military reservations, or withdrawn for any purpose, the quantity of Government land known to be suitable for farming is sufficient to provide farms for all immigrants who will come into the State for many years. The choicest lands and those nearest the railroads will first be taken and later comers will have to take what is left, which is a strong reason why homeseekers should hasten to make the necessary investigation preliminary to selection. The difficulty of securing water for drinking and domestic purposes makes unsuitable for farming some lands that would otherwise be desirable. It is estimated rather roughly, that 18,000,000 acres should be classified as farming lands of

which 12,000,000 acres are available for cropping, that the lands at present irrigated, or capable of irrgation, amount to 6,000,000 acres, and that 6,000,000 acres may be profitably cultivated by the dry farming system.

HOW LAND MAY BE OBTAINED.

All the land in Montana at one time belonged to the Government of the United States which has disposed of millions of acres under various laws. Of the total 93,806,080 acres which are embraced within the limits of the State the unappropriated Government lands amounted to 46,532,440 acres on June 30, 1908. The surveyed lands were 20,570,256 acres and the unsurveyed lands 25,962,184 acres.

The lands which have been disposed of have passed into the ownership of private individuals, the Northern Pacific Ry. Co., and the State of Montana. There are many opportunites to purchase lands in private ownership at prices which seem low in comparison with the productiveness of the soil, the returns which such investments yield, and the prices at which lands are selling in other states. The tendency is to divide large stock ranches into small tracts and offer them for sale for farms. Large grain ranches are also being sub-divided. As population increases, transportation facilities are improved and intensive cultivation becomes more general, owners who acquired large tracts at very low prices in early days find it to their advantage to sell a part of their extensive holdings and cultivate the balance in accordance with modern methods so as to secure a fair return of the capital they have invested in land at its present valuation. These facts account, in part, for the offering for sale of some of the most productive and highly improved farm lands in Montana.

The Northern Pacific Ry. Co., received very extensive grants of land on both sides of the main line and still owns a very large acreage. For information concerning these lands inquiry should be made of the Land Comissioner of the Northern Pacific Ry. Co., at St. Paul, Minn.

The State of Montana was granted two sections in every township for the support of public schools and received other large grants for public institutions. No State land can be sold at private sale or for a sum less than $10 an acre. At times, of which notice is given, lands are offered at public sale in the county in which they are located, having previously been appraised. If there is no offer to buy the lands at the price the State has fixed as their minimum value they are then subject to lease. Hundreds of thousands of acres are under lease and yield a large revenue. Information concerning State lands will be furnished upon application to the Register of the State Land Office, Helena, Montana.

Government Lands.

All business pertaining to the public lands must be transacted through the United States Land Office in the district where the land is located. Records of all entries and township plats and tract books can be consulted at the U. S. Land Offices at the following places, where information will be furnished as to the manner of obtaining public land: Billings, Bozeman, Glasgow, Great Falls, Helena, Kalispell, Lewistown, Miles City, Missoula.

There are many laws under which public lands are disposed of. One circular of the General Land Office tells how mineral and another how coal lands may be acquired. Timber and stone lands are sold under a special act. Many acres have been disposed of under the desert land act, which requires the reclamation of the tract by bringing water upon it. The homestead law, however, is one under which the public lands in Montana are being rapidly taken by settlers and the only one of which there is space to give a summary.

Homestead entries of lands within the government reclamation projects and ceded Indian reservations can be made only in the manner prescribed in the laws and regulations which relate particularly to them.

The act of February 19, 1909, providing for an enlarged homestead, is of especial interest to Montana. The first section provides for the making of homestead entry for an area of 320 acres of non-mineral, non-timbered, non-irrigable public land in Montana and certain other states. The term "non-irrigable" is construed to mean land which, as a rule, lacks sufficient rainfall to produce agricultural crops without the necessity of resorting to unusual methods of cultivation, such as the system known as dry farming, and for which there is no known source of water supply from which such land may be successfully irrigated at a reasonable cost. Lists designating the lands subject to entry under the act are sent to the various land offices, and no entry can be allowed until such lists are received. This law is of general application throughout Montana, lists having already been received at the offices. Lands entered must be reasonably compact in form and in no event exceed one and one-half miles in length. The fees shall be the same as those now required to be paid under the homestead law, the commissions being determined by the area of land embraced in the entry. Provision is also made that an additional entry of contiguous lands in amount sufficient to make the homestead claim embroce 320 acres may be made by an entryman who has not made final proof. The intending settler is advised to write to Commissioner of the General Land Office at Washington, D. C., for a copy of the circular defining the manner in which lands can be obtained under the homestead law.

During the first half of the year 1909 there were 956,607 acres of Government land disposed of in the districts of Glasgow, Great Falls, Helena, Lewistown and Miles City. No reports were receved from the offices at Billings, Bozeman, Kalispell or Missoula.

The following suggestions to land seekers and summary of the homestead law are republished from the Eleventh Biennial Report of the Montana Bureau of Agriculture, Labor and Industry.

HOMESTEADING.

The questions most persistently asked are, "Where are the public lands of Montana located, and how can one obtain them?"

In most instances a land map is also requested. Inquirers should understand first of all that maps of all the unoccupied land are to be consulted only in United States Land Offices, and that the primary requisite for making a location on any Government land is a personal inspection of the tract desired, which must be described by metes and bounds when the location is

made. There is public land in every county in Montana, but it is not by any means all suitable for cultivation. As a preliminary it is very often advisable that intending settlers in a community delegate one of their number to make the trip of inspection, all contributing to defray the expense. In this manner much information may be gained and some time saved. Later the individuals of the party may make personal visits to the land, thus qualifying themselves to make the proper affidavits at the land office.

The many pamphlets issued by the railroads and various local districts, together with the reports circulated by the State, give comprehensive ideas of the attractions and advantages afforded and may be relied upon as trustworthy. After these have been carefully studied there comes the necessity of making a choice as to what part of the State is to be selected for the new home. And just here it is well to remember that Montana is the third largest state in the Union, having an average length from east to west of 535 miles, while from north to south it measures 275 miles. In this immense area there is included nearly every variety of soil and climate, as well as a diversity of occupation which includes practically every avenue of human endeavor except that of extensive manufacturing.

An important matter for the homesteader to consider is the fact that unless he is prepared to pay the price asked for irrigated land on the Government projects, the only other location he can secure by homestead will be on land which must be farmed without an artificial water supply. This involves conditions so vastly different from those existing in other states that a full understanding of the approved methods of dry farming is absolutely necessary to insure success. This knowledge, however, the State is prepared in some measure to give and it will be found invaluable.

In selecting a location, persons desiring to make homestead entries should first fully inform themselves as to the character and quality of the lands they desire to enter, and should in no case apply to enter until they have visited and fully examined each legal sub-division for which they make application, as satisfactory information as to the character and occupancy of public lands can not be obtained in any other way.

As each applicant is required to swear that he is well acquainted with the character of the land described in his application, and as all entries are made subject to the rights of prior settlers, the applicant can not make the affidavit that he is acquainted with the character of the land, or be sure that the land is not already appropriated by a settler until after he has actually inspected it.

Information as to whether a particular tract of land is subject to entry may be obtained from the register or receiver of the land district in which the tract is located, either through verbal or written inquiry, but these officers must not be expected to give information as to the character and quality of unentered land or to furnish extended lists of lands subject to entry, except through plats and diagrams which they are authorized to make and sell as follows:

If You Don't Have to Work You Can Go Hunting and Fishing.

For a township diagram showing only the entered land $1.00
For a township plat showing form of entries, names of claimants and character of entries 2.00
For a township plat showing form of entries, names of claimants, character of entry and number 3.00
For a township plat showing form of entries, names of claimants, character of entry, number and date of filing or entry, together with topography, etc. 4.00

A list showing the general character of all the public lands remaining unentered in the various counties of the public land states on the 30th day of the preceding June may be obtained at any time by addressing the Commissioner of the General Land Office, Washington, D. C.

All blank forms of affidavits and other papers needed in making application to enter or in making final proofs can be obtained by applicants and entrymen from the land office for the district in which the land lies.

All unappropriated surveyed public lands are subject to homestead entry if they are not mineral or saline in character and are not occupied for the purpose of trade or business and have not been embraced within the limits of any withdrawal, reservation or incorporated town or city; but homestead entries on lands within certain areas (such as lands in Alaska, and lands withdrawn under the reclamation act, certain ceded Indian lands, and lands within abandoned military reservations, etc.) must be entered subject to the particular requirement of the laws under which such lands were opened to entry. None of these particular requirements are set out in these suggestions, but information as to them may be obtained by either verbal or written inquiries adressed to the register and receiver of the land office of the district in which lands are situated.

How Claims Under the Homestead Law Originate.

Claims under homestead laws may be initiated either by settlement on surveyed or unsurveyed lands of the kind mentioned in the foregoing paragraph, or by the filing of a soldier's or sailor's declaratory statement, or by the presentation of an application to enter any surveyed lands of the kind.

A settlement made on any part of a surveyed technical quarter section gives the settler the right to enter all of that quarter section which is then subject to settlement, although he may not place improvements on each 40 acre sub-division; but if the settler desires to initiate a claim to surveyed tracts which form a part of more than one technical quarter section he should perform some act of settlement—that is, make some improvement—on each of the smallest legal sub-divisions desired.

Settlement must be made by the settler in person, and can not be made by his agent, and each settler must within a reasonable time after making his settlement, establish and thereafter continuously maintain an actual residence on the land, and if he, or his heirs or devisees, fail to do this, or if he, or his heirs or devisees, fail to make entry within three months from the time he first settles on surveyed lands, or within three months from the filing in the local land office of the plat of the survey of unsurveyed lands on which he made settlement, the exclusive right of making entry to the

Where Contentment And Prosperity Combine.

lands settled on will be lost and the lands will become subject to entry by the first qualified applicant.

Soldiers' and sailors' declaratory statement may be filed in the land office for the district in which the lands desired are located by any persons who have been honorably discharged after ninety days' service in the army or navy of the United States during the war of the rebellion or during the Spanish-American war or the Philippine insurrection. Declaratory statements of this character may be filed either by the soldier or sailor in person or through his agent acting under a proper power of attorney, but the soldier or sailor must make entry of the land in person, and not through his agent, within six months from the filing of his declaratory statement, or he may make entry in person without first filing a declaratory statement, if he so chooses. The application to enter may be presented to the land office through the mails or otherwise, but the declaratory statement must be presented at the land office in person, either by the soldier or sailor or by his agent, and cannot be sent through the mails.

By Whom Homestead Entries May Be Made.

Homestead entries may be made for a quarter section or less by any person who does not come within either of the following classes:

(a) Married women, except as hereafter stated.

(b) Persons who have already made homestead entry, except as hereinafter stated.

(c) Foreign-born persons who have not declared their intention to become citizens of the United States.

(d) Persons who are the owners of more than 160 acres of land in the United States.

(e) Persons under the age of 21 who are not heads of families, except minors who make entry as heirs, as hereinafter mentioned, or who have served in the army or navy for at least fourteen days.

(f) Persons who have acquired title to or are claiming under any of the agricultural public land laws, through settlement or entry made since August 30, 1890, any other lands, which, with the lands last applied for, would amount in the aggregate to more than 320 acres.

A married woman, who has all of the other qualifications of a homesteader, may make a homestead entry under any one of the following conditions:

(a) Where she has been actually deserted by her husband.

(b) Where a husband is incapacitated by disease or otherwise from earning a support for his family and the wife is really the head and main support of the family.

(c) Where the husband is confined in a penitentiary and she is actually the head of the family.

(d) Where the married woman is the heir of a settler or contestant who dies before making entry.

(e) Where a married woman made improvements and resided on the lands applied for before her marriage, she may enter them after marriage if her husband is not holding other lands under an unperfected homestead entry

at the time she applies to make entry.

A married woman cannot make entry under any of these conditions unless the laws of the state where the lands applied for are situated give her the right to acquire and hold title to the lands as a feme sole.

If an entryman deserts his wife and abandons the land covered by his entry his wife then has the exclusive right to contest the entry if she has continued to reside on the land in her own right, or she may continue her residence and make proof in the name of and as the agent of her husband, and patent will issue to him.

If an entryman deserts his minor children and abandons his entry after the death of his wife, the children have the same rights the wife could have exercised had she been deserted during her lifetime.

If a husband and wife are each holding an original entry or a second entry at the same time, they must relinquish one of the entries, unless one of them holds an entry as the heir of a former entryman or settler. In cases where they cannot hold both entries, they may elect which one they will retain and relinquish the other.

The unmarried widows of soldiers and sailors who were honorably discharged after ninety days' actual service during the war of the rebellion, or the Spanish American war, or the Philippine insurrection, may make entry as such widows, if their husbands died without making entry; but a widow may make entry in her own right as an unmarried woman, regardless of the fact that her husband may have made entry, but she cannot claim credit for her husband's service.

A person serving in the army or navy of the United States may make a homestead entry if some member of his family is residing on the lands applied for, and the aplication and accompanying affidavits may be executed before the officer commanding the branch of the service in which he is engaged.

Second homestead entries for a quarter section or a smaller legal subdivision of public lands may be made, under statutes specifically authorizing such entries, by the following classes of persons, if they are otherwise qualified to make entry:

(a) By a former entryman who commuted his entry prior to June 5, 1900.

(b) By homestead entryman who, prior to May 17, 1900, paid for lands to which he would have been afterwards entitled to receive a patent without payment, under the "Free Homes Act."

(c) By any person who for any cause lost, forfeited or abandoned his homestead entry before February 8, 1908, if the former entry was not canceled for fraud or relinquished for a valuable consideration.

(d) Any person who has already made final proof for less than 160 acres under the homestead laws, may if he is otherwise qualified, make a second or additional homestead entry for such amount of public lands as will, when added to the land for which he has already made proof, not exceed in the aggregate 160 acres.

Any person desiring to make a second entry must first select and inspect the land he intends to enter and then make applicatiaon therefor on blanks

furnished by the register and receiver. Each application must state the date and number of his former entry and the land office at which it was made, or give the section, township and range in which the land entered was located. Any person mentioned in paragraph (c) above must show, by the oaths of himself and some other person or persons, the time when the former entry was lost, forfeited or abandoned, and that it was not canceled for fraud or abandoned or relinquished for a valuable consideration.

An additional homestead entry may be made by a person for such amount of public lands adjoining lands then held and resided upon by him under his original entry as will, when added to such adjoining lands, not exceed in the aggregate 160 acres. An entryof this kind may be made by any person who has not acquired title to and is not, at the date of his application, claiming under any of the agricultural public land laws, through a settlement or entry made since August 30, 1890, any other lands which, with the lands then applied for, would exceed in the aggregate of 320 acres; but the applicant will not be required to show any of the other qualifications of a homestead entryman.

An adjoining farm entry may be made for such an amount of public lands lying contiguous to lands owned and resided upon, by the applicant as will not, with the lands so owned and resided upon, exceed in the aggregate 160 acres; but no person will be entitled to make entry of this kind who is not qualified to make the original homestead entry.

How Homestead Entries Are Made.

A homestead entry may be made by the presentation to the land office of the district in which the desired lands are situated of an application properly prepared on blank forms prescribed for that purpose and sworn to before either the register or the receiver, or before a United States Commissioner, or a Judge or a Clerk of a Court of Record in the county or parish in which the land lies, or before any officer of the classes named who resides in the land district and nearest and most accessible to the land, although he may reside outside of the county in which the land is situated.

Each application to enter and the affidavits accompanying it must recite all the facts necessary to show that the applicant is acquainted with the land: that the land is not, to the applicant's knowledge, either saline or mineral in character; that the applicant possesses all of the qualifications of a homestead entryman; that the application is honestly and in good faith made for the purpose of actual settlement and cultivation and not for the benefit of other persons, or corporation; that the applicant will faithfully and honestly endeavor to comply with the requirements of the law as to the settlement, residence and cultivation necessary to acquire title to the land applied for; that the applicant is not acting as the agent of any person, persons, corporation, or syndicate to give them the benefit of the land entered or any part thereof; that the application is not made for the purpose of speculation, but in good faith to obtain a home for the applicant, and that the applicant has not directly or indirectly made and will not make, any agreement or contract in any way or manner with any person or persons,

corporation, or syndicate whatsoever by which the title he may acquire from the Government to the lands applied for shall inure, in whole or in part, to the benefit of any person except himself.

All applications to make second homestead entries must, in addition to the facts specified in the preceding paragraph, show the number and date of the applicant's original entry, the name of the land office where the original entry was made, and the description of the land covered by it, and it should state fully all of the facts which entitle the applicant to make a second entry.

All applications must state the date and describe the acts of settlement under which they claim a preferred right of entry, and applications by the widows, devisees, or heirs of settlers must state facts showing the death of the settler and their right to make entry; that the settler was qualified to make entry at the time of his death, and that the heirs or devisees applying to enter are citizens of the United States or have declared their intentions to become such citizens, but they are not required to state facts showing any other qualifications of a homestead entryman, and the fact that they have made a former entry will not prevent them from making an entry as such heirs or devisees, nor will the fact that a person has made entry as the heir or devisee of the settler, prevent him from making an entry in his own individual right, if he is otherwise qualified to do so.

All applications by soldiers, sailors, or their widows, or the guardians of their minor children, should be accompanied by proper evidence of the soldier's or sailor's service and discharge and of the fact that the soldier or sailor had not, prior to his death, made an entry in his own right. The application of the widow of the soldier or the sailor must also show that she has remained unmarried, and applications for children of soldiers or sailors must show that the father died without having made entry, that the mother died or remarried without making entry, and that the person applying to make entry for them is their legally appointed guardian.

Rights of Heirs Under the Homestead Laws.

If the homestead settler dies before he makes entry, his widow has the exclusive right to enter the lands covered by his settlement, and if there be no widow, then any person to whom he has devised his settlement rights by proper will has the exclusive right to make the entry; but if the settler dies leaving neither widow or will, then the right to enter the lands covered by his settlement passes to the persons who are named as his heirs by the laws of the state in which the land lies.

If a homestead entryman dies before making final proof, his rights under his entry will pass to his widow; but if there be no widow and the entryman's children are all minors, the right to a patent vests at once in them, or the lands may be sold for their benefit in the manner in which other lands belonging to minors are sold under the laws of the state or territory in which the lands are located.

If the children of a deceased entryman are not all minors and his wife is dead, his rights under his entry pass to the person to whom such rights

were devised by the entryman's will, but if an entryman dies without leaving either a widow or a will and his children are not all minors, his rights under his entry will pass to the persons who are his heirs under the laws of the state or territory where the lands are situated.

If a contestant dies after having secured the cancellaton of an entry of any kind, his right as a successful contestant to make entry passes to his heirs; but if a contestant dies before he has secured the cancellation of the entry he has contested, his heirs may continue the prosecution of his contest and make entry if they succeed in securing the cancellation of the entry contested.

No foreign-born persons can claim rights as heirs under the homestead laws unless they have become citizens of the United States, except that aliens who have declared their intentions to become citizens may make entry as the heirs or devisees of settlers or contestants.

Minor children of soldiers or sailors who have been honorably discharged after ninety days' actual services during the war of the rebellion, the Spanish-American war, or the Philippine insurrection, may make a joint entry, through their guardian, if their fathers failed to make homestead entry and their mothers have died or remarried without making entry after their father's death.

Residence and cultivation are required by the homestead law to the exclusion of a home elsewhere, and continuous annual cultivation of some portion of the land. A mere temporary sojourn on the land, followed by occasional visits to see it once in six months or oftener, will not satisfy the requirements of the homestead law, and may result in the cancellation of the entry.

No specified amount of either cultivation or improvements is required, but there must in all cases be such continuous improvement and such actual cultivation as will show the good faith of the entryman. Lands covered by homestead entry may be used for grazing purposes if they are more valuable for pasture than for cultivation of crops. When lands of this character are used in good faith for pasturage actual grazing will be accepted in lieu of actual cultivaton. The fact that lands covered by homestead entries are of such a character that they can not be profitably cultivated or pastured will not be accepted as an excuse for failure to either cultivate or graze them.

Actual residence on the land entered must begin within six months from the date of all homestead entries, and residence with improvements and annual cultivation, must continue until the entry is five years old, except in cases hereafter mentioned; but all entrymen who actually resided upon and cultivate lands entered by them prior to making such entries may make final proof at any time after entry when they can show five years' residence and cultivaton.

Residence and cultivaton by soldiers and sailors must begin within six months from the time they file their declaratory statements regardless of the time when they make entry under such statement, but if they make entry without filing a declaratory statement, they must begin their residence within six months from the date of such entry, and residence thus established must continue in good faith, with

improvements and annual cultivation for at least one year, but after one year's residence and cultivation the soldier or sailor is entitled to credit on the remainder of the five-year period for the term of his actual naval or military service, or if he was discharged from the army or navy because of wounds received or disabilities incurred in the line of duty he is entitled to credit for the whole term of his enlistment.

A soldier or sailor making entry during his enlistment in time of peace is not required to reside personally on the land, but may receive patent if his family maintain the necessary residence and cultivation until the entry is five years old or until it has been commuted, but a soldier or sailor is not entitled to credit on account of his military service in time of peace.

Widows and minor orphan children of soldiers and sailors who make entry as such widows and children must begin their residence and cultivaton on the lands entered by them within six months from the dates of their entries or the filing of declaratory statement, and thereafter continue both residence and cultivation for such period as will, when added to the time of their husbands' or fathers' military or naval service, amount to five years from the date of the entry, and if the husbands or fathers either died in the service or were discharged on account of wounds or disabilities incurred in the line of duty, credit for the whole term of the enlistment, not to exceed four years, may be taken, but no patent will issue to such widows or children until there has been residence and cultivation by them for at least one year.

Persons who make entry as heirs of settlers are not required to both reside upon and cultivate the land entered by them, but they must within six months from the dates of their entries begin, and thereafter continuously maintain either residence or cultivation on the land entered by them for the required five-year period, unless their entries are sooner commuted.

The widow, heirs or devisees of a homestead entryman who dies before he earns patent are not required to both reside upon and cultivate the lands covered by the entry, but they must within six months after the death of the entryman, begin either residence or cultivation on the land covered by the entry, and thereafter continuously maintain their residence or cultivation for such a period of time as will, when added to the time during which the entryman complied with the law, amount in the aggregate to the required five years unless they sooner commute the entry.

Homestead entrymen who have been elected or appointed to either a federal, state, or county office after they have made entry and established an actual residence on the land covered by the entry, are not required to continue such residence during their term of office, if the discharge of their bona fide official duties necessarily requires them to reside elsewhere than upon the land; but they must continue their cultivation and improvements for the required length of time.

A person who makes entry after he has been elected or appointed to office is not excused from maintaining residence, but must comply with the law in the same manner as though he had not been elected or appointed.

Neither residence nor cultivation is required on lands covered by an adjoining farm entry; but a person who makes an adjoining farm entry is

not entitled to a patent until he has continued his residence and cultivation for the full five years on the adjoining lands owned by him at the time he made entry or on the lands entered by him, unless he sooner commutes his entry after fourteen months' residence on either the entered lands or the adjoining lands owned by him.

A person who has made an additional entry for lands adjoining his original entry is not entitled to a patent to the lands embraced in his original homestead entry, but if he has earned a patent under his original entry at the time he makes his additonal homestead entry he is entitled at once to a patent under the additional entry.

Neither residence nor cultivation by an insane homestead entryman is necessary if such entryman made entry before he became insane and complied with the requirements of the law up to the time his insanity began.

Leaves of Absence.

Leaves of absence for one year or less may be granted to entrymen who have established actual residences on the lands entered by them in all cases where total or partial failure or destruction of crops, sickness, or other unavoidable casualty has prevented the entryman from supporting himself and those dependent upon him by cultivation of the land.

Applications for leaves of absence should be addressed to the register and receiver of the land office where the entry was made and should be sworn to by the applicant and some other disinterested person before such rgister and receiver or before some officer in the land district using a seal and authorized to administer oaths, except in cases where through age, sickness, or extreme poverty the entryman is unable to visit the district for that purpose, when the oath may be made outside of the land district. All applications of this kind should clearly set forth:

(a) The number and date of the entry, a description of the lands entered, the date of the establishment of his residence on the land, and the extent and character of the improvements and cultivation made by the applicant.

(b) The kind of crops which failed or were destroyed and the cause and extent of such failure or destruction.

(c) The kind and extent of the sickness, disease, or injury should be furnished.

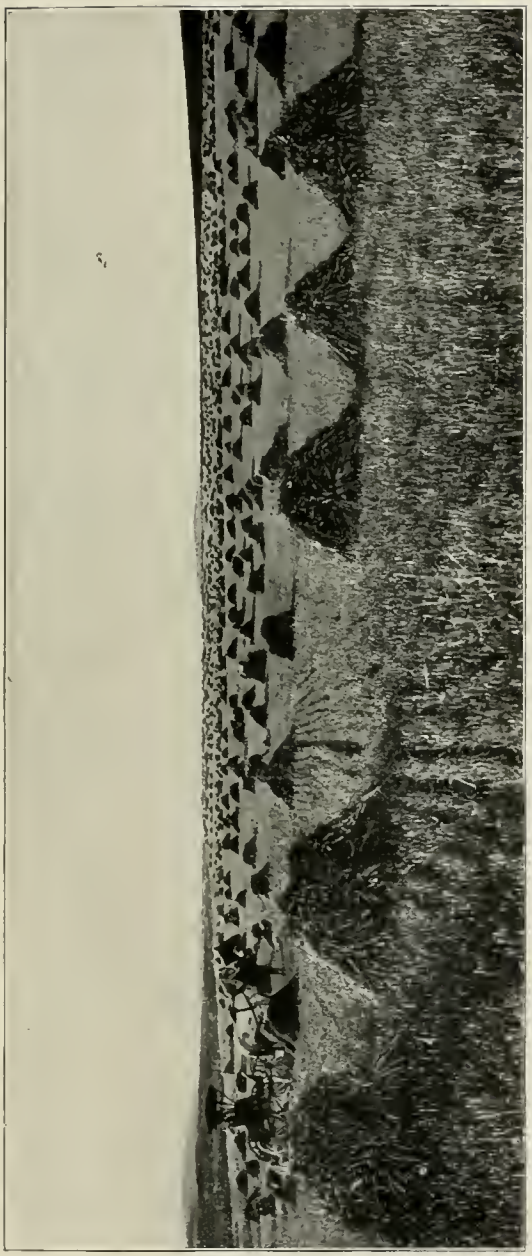
(d) The character, cause, and extent of any unavoidable casualty which may be made the basis of the application.

(e) The dates from which and to which the leave of absence is requested.

Commutation of Homestead Entries.

All original, second, and additional homestead and adjoining farm entries may be commuted, except such entries as are made under particular laws which forbid their commutation.

When actual residence was established within six months from the date of any entry made before November 1, 1907, and thereafter continuously maintained with improvements and cultivation until the expiration of fourteen



Dry Farming on the Bench Lands of the Gallatin Valley

months from the date of the entry and in cases where there has been at least fourteen months' actual and continuous residence and cultivation on any land covered by any entry made after November 1, 1907, the entryman or his widow, heirs, or devisees may obtain patent by proving such residence and cultivation and paying the costs of such proof, the land office fees, and the price of the land, which is $1.25 per acre outside of the limits of railroad grants and $2,50 per acre for land within the granted limits, except as to certain lands which were opened under statutes requiring payment of a price different from that here mentioned.

Homestead Final and Commutation Proof.

Either final or commutation proof may be made at any time when it can be shown that residence and cultivation have been maintained in good faith for the required length of time, but if final proof is not made within seven years from the date of a homestead entry the entry will be canceled unless some good excuse for the failure to make the proof within seven years is given with satisfactory final proof as to the required residence and cultivation made after the expiration of seven years.

By Whom Proof May Be Offered.

Final proof must be made by the entrymen themselves, or by the widows, heirs, or devisees, or executors, except in the following cases:

(a) If an entryman becomes insane after making his entry, patent will issue to the entryman on proof by his guardian, or other legal representative, that the entryman had complied with the law up to the time his insanity began.

(b) If any person has made a homestead entry and afterwards died while he was serving as a soldier or a sailor during the Spanish-American war or the Philippine insurrection, patent will issue upon proof made by his widow, if married, or in case of her death or marriage, then his minor orphan children, or his, her, or their legal representatives.

(c) Where entries have been made for minor orphan children of soldiers or sailors, proof may be offered by their guardian, if any, if the children are still minors at the time the proof should be made.

(d) When an entryman has abandoned the land covered by his entry, and deserted his wife, she may make final or commutation proof as his agent, or, if his wife be dead and the entryman has deserted his minor children, they may make the same proof as his agent, and patent will issue in the name of the entryman.

(e) When an entryman dies leaving children, all of whom are minors, and both parents are dead, the executor or administrator of the entryman, or the guardian of the children, may, at any time within two years after the death of the surviving parent, sell the land for the benefit of the children by proper proceedings in the proper local court, and patent will issue to the purchaser; but if the land is not so sold patent will issue to the minors upon proof of death, heirship, and minority proof being made by such administrator or guardian.

How Proofs May Be Made.

Any person desiring to make homestead proof should first forward a written notice of his desire to the register and receiver of the land office, giving his postoffice address, the number of his entry, the name and official title of the officer before whom he desires to make proof, the place at which the proof is to be made, and the name and postoffice addresses of at least four of his neighbors, who can testify from their own knowledge as to the facts which will show that he has in good faith complied with all the requirements of the law.

Publication Fees.

The entryman should, at any time he informs the register of his desire to make final proof, forward to the receiver sufficient money to pay the newspaper for publishing the notice, which fees will not exceed the fees provided by the state laws for the publication of legal notices of a similar kind. If the entryman does not forward the money to pay these fees, he may forward a statement for the publisher of the paper, in which the notice is to be published, showing that he has arranged with the publisher for the payment of the fees.

Duty of Officers Before Whom Proofs Are Made.

On receipt of the notice mentioned in the preceding paragraph, the register will issue a notice naming the time, place and officer before whom the proof is to be made and cause the same to be published once a week for five consecutive weeks in a newspaper of established character and general circulation nearest the land, and also post a copy of the notice in a conspicuous place in his office.

On the day named in the notice the entryman must appear before the officer designated to take proof with at least two of the witnesses named in the notice: but if for any reason the entryman and his witnesses are unable to appear on the date named, the officer should continue the case from day to day until the expiration of ten days, and the proof may be taken on any day within that time when the entryman and his witnesses appear on the day mentioned in the notice. Entrymen are advised that they should, whenever it is possible to do so, offer their proofs before the register or receiver, as it may be found necessary to refer all proofs made before other officers to a special agent for investigation and report before patent can issue, while, if the proofs are made before the register and receiver, there is less likelihood of this being done, and there is less probability of the proofs being incorrectly taken. By making proof before the register or receiver the entryman will also save the fees which they are required to pay other officers, as they will be required under the law to pay the register and receiver the same amount of fees in each case, regardless of the fact that the proof may have been taken before some other officer.

Entrymen are cautioned against improvidently and improperly commuting their entries, and are warned that any false statement made in either commutation or final proof may result in their indictment and punishment for the crime of perjury.

Fees and Commissions.

When a homesteader applies to make entry he must pay in cash to the receiver a fee of $5 if his entry is for 80 acres or less, or $10 if he enters more than 80 acres, and in addition to this fee he must pay, both at the time he makes entry and final proof, a commission of $1 for each 40-acre tract entered outside of the limits of a railroad grant and $2 for each 40-acre tract entered within such limits. On final proofs made before either the register or the receiver or before any other officer authorized to take proofs, the register and receiver are entitled to receive 15 cents each for each 100 words reduced to writing, and no proof can be accepted or approved until all fees have been paid.

In all cases where lands are entered under the homestead laws in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming, the commission due to the register and receiver on entries and final proofs, are 50 per cent more than those above specified, but the entry fee of $5 or $10, as the case may be, remains the same in all the states.

United States commissioners, United States court commissioners, judges, and clerks are not entitled to receive a greater sum than 25 cents for each oath administered by them, except that they are entitled to receive $1 for administering the oath to each entryman and each final proof witness to final proof testimony, which has been reduced to writing by them.

THE LIVE STOCK INDUSTRY.

The grazing lands support the live stock industry which has been next in importance to mining. It has grown and prospered as the years have gone by until the free and open range has all been occupied, even crowded in some localities. The occupation by settlers of the Government land has lessened the range as has also the creation of forest reserves. However, the future success of the live stock industry in Montana is assured by the vast area of land that is only adapted for grazing and by the conditions which have made the industry so wonderfully successful since its establishment, viz., the excellence of the climate and water, the nutritious quality of the native grasses and the freedom from diseases. The industry began with the raising of horses and cattle, which was followed by the introduction of sheep

into the territory and the growth of this branch of the live stock industry has gained until Montana now holds first rank among the states for the production of wool and the number of sheep owned.

Horses raised in Montana are noted for their endurance, courage and lung power. Many noted race horses have been born in the State. Breeding establishments turn out numbers of running, trotting and pacing horses every year, and also many fine driving horses and saddle animals. A great improvement in the past ten years in the size and strength of the work horses has been caused by the importation of blooded stallions of the most approved breeds.

Cattle flourish on the native grasses of Montana as they do nowhere else. They do not require much winter feeding. Steers from the range have brought top prices in the markets of Chicago. The herds have been bred up and fine types of the best grades of cattle are to be found in every county. Cattle are bought in other states and brought into Montana and fattened for the market.

Sheep are usually of the grades best adapted for the range and for the production of wool, and no expense has been spared by the flockmasters in bringing their flocks up to the highest possible grades. The raising of the mutton varieties has also begun and will increase in importance as the profits to be derived from the business are more fully understood. Already the business of fattening lambs and sheep has assumed large proportions in sections where alfalfa is abundantly grown. This business combines the advantages of farming and manufacturing as it is, in effect, turning the raw material—the grass and grain into the manufactured product—the fattened steer, sheep, or lamb, on the farm.

The business of raising swine has not received the attention it deserves in Montana. There is always a local market, at high prices, for all hog products; there is unusual freedom from diseases, and alfalfa, corn, peas and grain furnish the food supply. Wherever tried the business has been profitable.

MINERALIZED AREA.

It is beyond the scope of this pamphlet to attempt a description of the vast mineralized area of Montana or to discuss the mineral industry of the State. It may be said, however, that it is the belief of many well informed people that the mineralized area has not yet been prospected: that new placer grounds may yet be found and that there are many mines of gold, silver, lead

and copper waiting to be opened. Also there are mining claims which have been partially developed which will be converted into productive mines when capital has been provided to work them properly. Known deposits of ores carrying good values are not now producing because they are situated at a distance too remote from a railroad to justify freighting to a station for transportation to a smelter. Doubtless there are places not yet tried which would re-pay the large initial cost of installing dredges for the recovery of placer gold. New methods of milling ores have been discovered since the palmy days of gold and silver mining in Montana when only high grade ores were milled; and ores that were of a value too low to be treated then can now be worked at a profit. These low grade ores, these partially developed claims, these mineral districts remote from railroads, as well as mineral properties where the values near the surface have been extracted but where the necessary depth to demonstrate the presence or absence of ore in quantity and value to make a paying mine has not been obtained—all these present alluring chances for fortune.

Prospectors "Breaking Camp" In the Morning.

There is no reason to doubt the permanent greatness of the mining industry and its expansion may be confidently expected. The mineral resources of Montana, developed and undeveloped, are among its greatest assets.

The large number of men engaged in the mining industry or dependent upon it consume a large part of the products of the soil. The home market which their needs provide is one of the most important advantages the farmers and fruit growers of Montana possess. Their prosperity and that of the tillers of the soil, are, in a measure, linked together. Lesser industries also add to the home demands. Every city and distributing point receives each month many carloads of food stuffs imported from outside the State which could be produced within it. Some idea of the magnitude of the demand that home production has been unable to meet may be had from the following table, the items of which were obtained from the actual freight bills at the leading railway stations in the State for the year 1906 and express in pounds a part of the products imported:

FARM PRODUCTS (POUNDS) IMPORTED INTO MONTANA IN 1906, AS SHOWN BY FREIGHT BILLS AT LEADING STATIONS.

Potatoes	10,374,387	Onions	1,475,609
Mixed vegetables	2,997,801	Cabbage	1,645,039
Asparagus	19,678	Celery	74,871
Green peas	13,133	Green beans	12,036
Lettuce	3,393	Green corn	15,774
Rhubarb	42,085	Cucumbers	42,395
Tomatoes	463,660	Spinach	5,849
Eggs (dozen)	4,056,360	Squash	4,726
Carrots	4,715	Beets	2,670
Horse radish	4,430	Turnips	13,276
Dried peas	2,024	Dried beans	1,189,654
Clover seed	105,114	Flax seed	6,060
Millet	25,010	Alfalfa seed	83,446
Barley	145,200	Oats	332,340
Wheat	18,239,150	Malt	1,269,540
Mixed pickles	1,429,878	Ham	7,222,021
Bacon	3,617,177	Cured Meats	552,467
Fresh pork	2,597,577	Other fresh meats	3,139,421
Condensed milk	899,985	Butter	4,350,956
Oleo and butterine	700,065	Cheese	751,366
Poultry	3,024,837	Lard	1,888,620

Total value of importations about $6,500,000.

THE BUILDING OF THE STATE.

There is no space to recount here, even in bare outline, the extremely interesting history of Montana. The eastern part was in the Louisiana Territory which was ceded to the United States in 1803, and the western part was in the Oregon Territory which was discovered by Captain Robert Gray in 1792. Lewis and Clark passed through it from the east to west in 1805 on their journey of exploration to the Pacific and from west to east on their return in 1806. After them came explorers, missionaries, trappers, and fur traders, but there were only a very few whites in its vast area until large numbers were attracted by the discoveries of placer gold at Gold Creek, Bannack, and Virginia City, 1862-3. This influx of population caused the creation of Montana Territory in 1864. The first industry was mining of placer gold. Some of the gulch diggings were marvellously rich, Alder, Last Chance and Confederate gulches being the most productive. Those were flush times in Montana. As the placers became exhausted many restless spirits moved away. Farming and stock raising started soon after the gold discoveries. Quartz mining was a somewhat later development. Gold and silver mines were very productive. Then followed the beginning of copper mining at Butte which was destined in a few years to attain such vast proportions. Meanwhile settlements of stock men and farmers were extended. Hostile Indians roamed the plains and were not subdued until after the Custer massacre.

The pioneer period may be held to include all the years previous to 1883 when the Northern Pacific Railway was completed across the State.

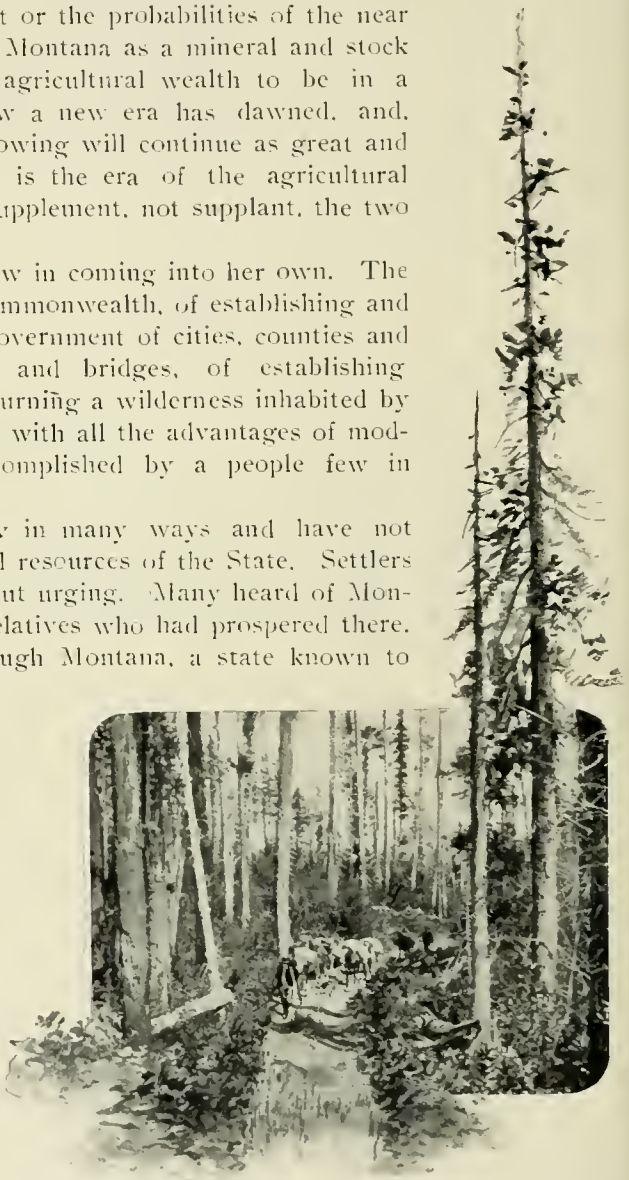
There is not one dull page in the history of pioneer days. As one writer, himself a pioneer said, "These were days of adventure, heorism and romance in Montana but a tithe of which has been written and even the traditions of which are vanishing day by day as one after another of the old timers is laid to rest beneath the shadows of his beloved mountains."

An expansion in business in all lines followed the building of the railroads. First came what is now the Oregon Short Line; then the Northern Pacific which constructed many branches, then the Great Northern, and the

Montana Central which connected the three systems, then the Chicago, Burlington and Quincy line as far as Billings, then the Billings and Northern from Billings to Great Falls through the great Inland Empire, and last year the Chicago, Milwaukee and Puget Sound Railroad. Other transcontinental systems are headed for the State, branch lines are projected and some are under construction and trolley lines through some thickly settled sections are among the realities of the present or the probabilities of the near future. The greatness of Montana as a mineral and stock growing state caused its agricultural wealth to be in a measure overlooked. Now a new era has dawned, and, while mining and stockgrowing will continue as great and increasing industries, this is the era of the agricultural development which will supplement, not supplant, the two other great industries.

Montana has been slow in coming into her own. The task of building up the commonwealth, of establishing and maintaining an efficient government of cities, counties and state, of building roads and bridges, of establishing churches and schools, of turning a wilderness inhabited by savages into a community with all the advantages of modern civilization was accomplished by a people few in number.

They have been busy in many ways and have not advertised the agricultural resources of the State. Settlers who came in did so without urging. Many heard of Montana through friends or relatives who had prospered there. Homeseekers passed through Montana, a state known to them only as a mining and stock country, gave no heed to its agricultural wealth, and settled east and west on less productive soil. As older states have filled up the pressure of population seeking homes has become great and the fact is becoming realized that the only large area of fertile land in the United States waiting to be peopled is in Montana. The tide of immigration has set in from both the east and from the west. The vacant lands are filling up. The open range has been invaded by homesteaders who have proved its fitness for farming. As a result many large ranches have become of too much value to be used for pasture and have been divided into small tracts and sold



for farms. The range country is being rapidly transformed into a region of farms. Coincident with this hunger for land, and serving to satisfy it, is the increase in the area of irrigated lands by the completion of projects under the Carey Act, by the Government under the irrigation act, the opening to settlement of Indian reservations, and the discovery of the value as farm lands, cultivated by the dry land farming system, of large areas which have heretofore been used only for the pasturing of live stock. The construction of new railroads has made possible the settlement of sections which were previously too distant from the market for farming to be profitably pursued, and the advantages Montana offers are becoming known through many private letters telling of successes achieved as well as by literature describing the resources of the State and the unequalled opportunities which it offers.

RAILROAD DEVELOPMENT.

There were no railroads prior to 1880, when the Utah Northern, now the Oregon Short Line, was completed to Butte. Freight and passengers came overland by team starting from the towns on the Missouri River in Missouri

or Kansas, up the Missouri River in steamboats to Fort Benton, or to Corinne, Utah, after the completion of the Union Pacific Railroad to that point. The Northern Pacific Railway was completed across the continent September 8, 1883, and was celebrated by the driving of a gold spike at a point between Garrison and Gold Creek. July 4, 1883, was a gala day at Helena when the people assembled in thousands to welcome the arrival of the first regular train and to witness the departure of the first bullion train. It consisted of thirty-six new box cars and bore the inscription "1,000,000 Pounds Gregory Bullion From Helena, Montana."

The great event in recent railroad construction is the building across the State between the Northern Pacific and the Great Northern of the Puget Sound extension of the Chicago, Milwaukee & St. Paul railroad. This road was completed as far as Butte in 1908, and announcement has just been made that the line throughout the whole extent of Montana is opened for

business. It was built through a part of Montana that was without transportation facilities and its completion is an important event in our industrial history. There are rumors of other transcontinental lines being extended into this productive territory. In 1879 the railroad mileage in Montana was "0"; in 1909 it is 4,342 miles. The increase of railroad mileage measures the growth of a state; it was 2,735 miles in 1894; 3,307 in 1907 and is 4,342 in 1909.

CHURCHES AND SCHOOLS.

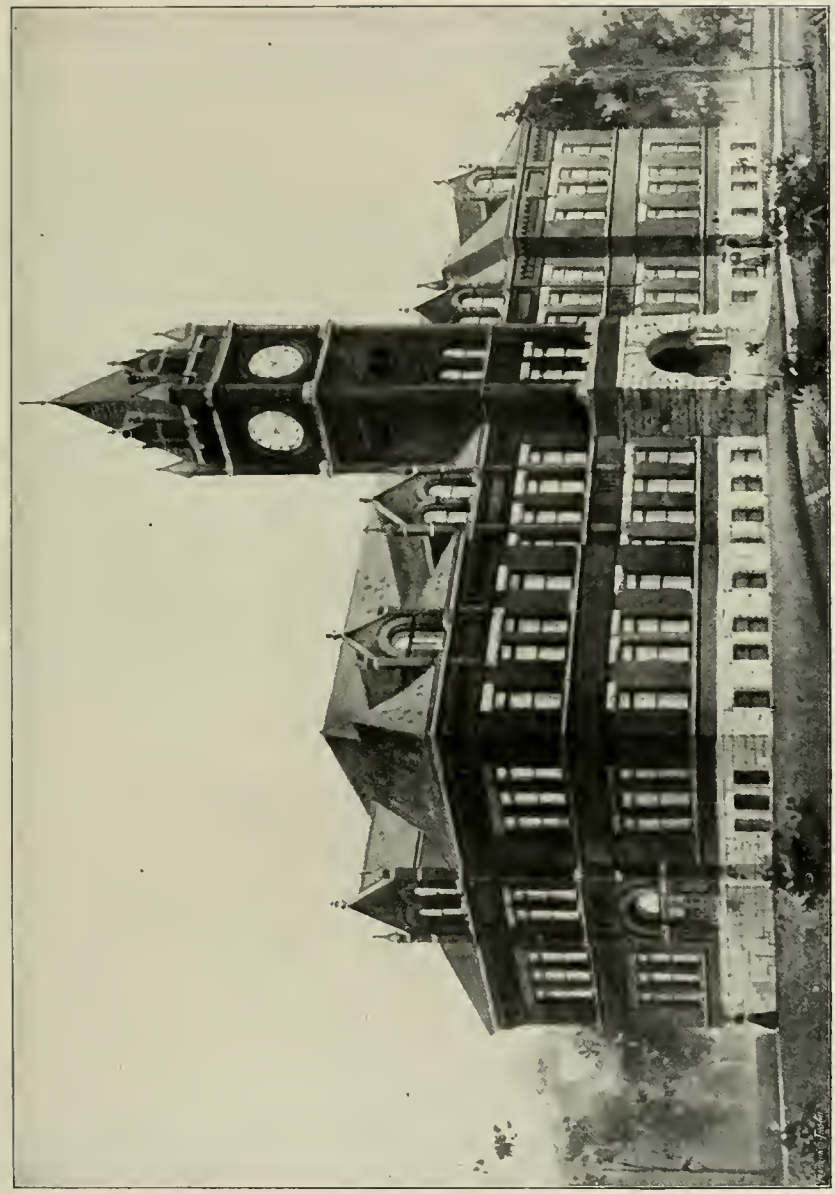
Between the date of the first settlements and the present time the various church organizations have extended their activities without intermission and all the principal and many of the minor denominations are represented by churches in every county. There are many church societies, and church schools will be found in the chief towns and cities.

The necessity of providing for the education of the children was realized by the pioneers and in 1864 the public school system was instituted. The first school census was taken in 1868 and the number of children of school age was 1,359; in 1907 the number was 73,629. The constitution of the State of Montana provides: "It shall be the duty of the Legislative Assembly of Montana to establish and maintain a general, uniform, and thorough system of public free, common schools." This duty has been performed and a complete public school system, extending from the primary grade to the university, established. There is a State Board of Education, consisting of the Governor, Attorney General and State Superintendent of Public Instruction, ex-officio, and eight appointed members, and there is a County Superintendent in every county. In 1908 there were 1,066 school houses valued, including sites, $4,137,550. Sixty-nine new school buildings were built during the year. Disbursements during the year for school purposes were $3,137,056.43. In every county are good schools, in the cities high schools and some of the counties have county high schools. There is a provision for compulsory education. As new regions are settled new school districts are formed. Those who desire to get detailed information on the common school system, should write to the Superintendent of Public Instruction, Helena, for a copy of the school laws and for his last report.

One-eighteenth of the surface of Montana—the sixteenth and thirty-sixth sections—was granted to the State for the maintenance of public schools and liberal grants of land were made for the State University, the Agricultural College, the School of Mines, the Normal School, the State Reform School and the Deaf and Blind School. These institutions are all worthily fulfilling the purposes of their creation. The University of Montana is located at Missoula; the Montana Agricultural College at Bozeman; the School of Mines at Butte; the Normal School at Dillon; the Reform School at Miles City; the Deaf and Blind School at Boulder; the State Orphans' Home at Twin Bridges, and the Soldiers' Home at Columbia Falls.

WEALTH PRODUCTION.

The small population which has inhabited Montana has gone steadily on building up the commonwealth. These people, so few in number, have



University of Montana at Missoula.

enriched the world by $1,352,800,143 worth of gold, silver, copper and lead. Their Horses, cattle, sheep and wool have added vast sums to the wealth of the nation. The products of the small portion of the soil under cultivation has been yearly increasing in value. Against many difficulties they established the supremacy of law and order and have sustained the burden of civil government in a vast country sparsely settled and have built up towns, cities, counties and a state that challenges comparison in achievements with any others of like age. They have made a great success of the mineral industry as the following table will show:

PRODUCTION OF GOLD, SILVER, COPPER AND LEAD IN MONTANA, FROM THE YEAR 1862 TO 1907, INCLUSIVE.

YEAR	Gold	Silver*	Copper	Lead	Totals
1862 to 1881	$200,000,000	$ 11,000,000	.....	.....	$211,000,000
1882	2,550,000	4,370,000	1,539,860	.....	8,459,860
1883	1,800,000	6,000,000	3,452,960	226,424	11,479,384
1884	2,170,000	7,000,000	5,386,500	246,326	14,802,826
1885	3,400,000	11,500,000	6,779,800	274,350	21,954,150
1886	4,422,000	13,819,000	5,761,200	494,132	24,526,332
1887	5,978,536	17,817,548	8,853,750	607,662	33,257,496
1888	4,200,253	15,790,726	15,103,946	569,160	35,664,095
1889	3,500,000	19,393,939	13,334,970	456,975	26,685,884
1890	3,200,000	20,363,636	16,656,437	675,392	40,995,465
1891	2,890,000	20,139,394	14,377,336	1,229,027	38,635,757
1892	2,891,386	22,432,323	19,105,464	990,035	45,419,208
1893	3,576,000	21,858,780	16,630,958	964,089	43,029,827
1894	3,651,410	16,575,458	17,233,718	730,551	38,191,137
1895	4,327,010	22,886,992	21,114,869	754,360	49,083,261
1896	4,380,671	20,324,877	25,356,541	670,010	50,732,099
1897	4,496,431	21,730,710	26,798,915	928,619	53,954,675
1898	5,247,913	19,159,482	26,102,616	809,056	51,319,067
1899	4,819,157	21,786,835	40,941,906	909,410	68,457,308
1900	4,736,225	18,482,211	39,827,135	701,156	63,746,727
1901	4,802,717	18,334,443	36,751,837	498,622	60,387,619
1902	4,400,095	17,662,285	24,606,038	332,749	46,961,167
1903	4,590,516	17,097,702	28,200,695	387,445	50,276,355
1904	5,097,786	18,887,227	36,410,310	195,525	60,590,848
1905	4,889,234	17,359,912	48,165,277	227,160	70,677,583
1906	4,469,014	8,027,072	56,105,288	254,390	68,855,764
1907	3,286,212	6,149,619	44,021,758	198,660	53,656,249
Total	$303,872,596	$433,976,181	$598,620,081	$ 14,331,285	$1,352,800,143

*Coining value.
Note—No annual compilations were made prior to 1881.

COAL AREA AND MINING.

They have begun the mining of coal which is one of the greatest resources of Montana. Prof. Rowe of the University of Montana at Missoula, in Bulletin No. 37 entitled, "Montana Coal and Lignite Deposits," discusses the coal fields in detail and gives analyses of the various coals. Concerning the extent of the coal fields he says:

"According to estimates given by Storrs in the Twenty-Second Annual Report of the U. S. Geological Survey, Montana has an area of about 13,000 square miles of anthracitic, bituminous and lignitic-bituminous coals. The lignite areas including the Cretaceous and Tertiary will undoubtedly aggregate more nearly 50,000 square miles than the area heretofore given of 25,000 square miles. The bituminous area of Montana exceeds the combined bituminous areas of North Dakota, South Dakota, Wyoming, Utah and New Mexico; and is only exceeded in the Rocky Mountain states by Colorado. Her lignite area is next to that of North Dakota, and exceeds the combined lignitic areas of all the other states of the Rocky Mountains.

All but three counties, Silver Bow, Sanders and Jefferson, have coal or

lignite deposits, as soon as developed, of commercial value. Few states can boast of such a distribution of natural fuel. In the eastern part of the State the ranchers and townspeople, as well, burn nothing but lignite. Any one living on the plains and desiring a load of fuel, simply drives to his favorite nearby seam and procures it. This is, indeed, a blessing. No timber to speak of within miles, and oftentimes remote from a railroad, the people are

A Montana Coal Mine and Washer.

permitted to live and develop this great country without worry and but little trouble in securing the much needed article in the development of every country—fuel."

The output of the coal mines of Montana in 1907 was 2,030,504 tons and in 1908, 1,908,347 tons. The annual consumption of coal in the State largely exceeds the home production.

MANUFACTURING.

Manufacturing has scarcely begun and Montana presents many opportunities for manufacturing enterprises owing to the wealth of raw material to be found within its borders, its innumerable water powers, the abundance of coal, the cheapness at which electrical power can be furnished and a home market composed of consumers of a larger purchasing power than an equal number of people in any state in the Union.

The industrial census of 1905 gives the total value of products, including custom work and repairing, as $66,415,451 from 382 establishments. These figures, however, include the smelters as factories and the copper output as manufactured product. They should perhaps, be embraced in the mining statistics.

The lumber and timber industry, omitting the smelting of ores, was the

largest manufacturing industry. The number of establishments reporting was 41, with a capital of $4,605,052, a product of $3,204,674 and a payment of wages of $1,497,255 to 2,180 employees. In five years there was an increase of 26.4 per cent in wages paid. The timbered area of the State has been estimated at 12,000,000 acres.

Flour and grist mill products increased in value during five years 113.7 per cent and returned: Establishments 12; capital invested $991,191; value of product, $2,003,136; 67 employees received during the year $57,096.

Twenty establishments engaged in the production of malt liquors had a capital of $2,174,690; the value of the product was $1,731,691; number of employees 250 and wages paid $284,795.

Printing and publishing was next on the list with 92 establishments. Capital, $1,023,785; product, $1,486,566 and 481 employees who received $542,063 in wages. This business has grown rapidly in the past five years.

Ten foundry and machine shops reported as follows: Capital, $689,771; products, $871,590; employees, 353 and wages $325,807.

A large cement factory is being constructed at Trident, Gallatin County, which will manufacture from the abundant raw material found near it an article which is consumed in great quantities in Montana.

HORTICULTURE.

Only a beginning has been made in the cultivation of the soil. Some space has been given to the principal crop productions and brief reference will now be made to the horticultural, dairying and sugar beet industries.

The importance of the horticultural industry has been recognized by the creation of the State Board of Horticulture of which the Governor is ex-officio a member, the other members being selected "with reference to their study of, and practical experience in horticulture, and in the industries dependent thereon."

The Board maintains an office at Butte, which is in charge of the secretary, and has issued reports containing information of much practical value, relative to the horticultural industry.

The Montana Horticultural Society was organized in 1898, has for its mission the development of the fruit industry, and holds annual meetings whose proceedings are printed. The secretary is Prof. M. J. Elrod, Missoula. "Horticulture in its broadest sense, has passed the experimental stage," says the foreword of the report of the proceedings of the society for 1908. "Gardens are in every valley; small fruits supply a large portion of the demands of the market. Apples, plums, pears and cherries are shipped by the thousand boxes or crates. Millions of trees are on the road to bearing, and thousands are being set out annually. And yet there is room. Land set out in fruit or orchards soon doubles in price. Irrigation makes the crop as certain as the rotation of the earth upon its axis. When the industrious horticulturist can work a few years to take care of his orchard until it produces fruit, and then sit in the shade, if he is so inclined, while his fruit grows, and his money comes in, it is proof that the old times have passed away."

In order to establish and maintain the reputation of the fruit grown in that section and to insure proper inspection, sorting, grading, and packing.

Where Fruit Pests are Unknown.

the Bitter Root Fruit Growers' Association was formed in 1907, and has accomplished much good in promoting the marketing of the fruit to advantage. The Flathead Fruit Growers' Association was formed the same year for the same purpose. Carloads of Montana apples have been shipped to Minneapolis and Chicago and hundreds of carloads of fruit are annually shipped into Montana.

Home Production of Fruit Insufficient.

The fruit industry is in its infancy, the home product furnishing only a small percentage of the amount consumed. Every portion of the State is adapted to the production of fruit of one kind or another, but the various sections vary so much in soil, altitude, climate and other conditions that the varieties and kind of fruit that may be successfully grown vary greatly in the different sections and long years of experimental work have been necessary to determine the varieties of fruit best adapted for a particular locality. The fruit growing industry is increasing in importance every year. The climate of Montana is such that insect pests do not thrive well, and the crisp mountain air and fertile soil combine to give the fruit a fine flavor. And the fruit grower has an almost unlimited home market.

All berries flourish everywhere in Montana and apples grow in every county. Crab apples are a profitable crop. Pears do well in certain places. Plums also are grown and peaches in a few places. Cherries are among the most satisfactory and profitable fruits grown. Apples are by far the largest fruit crop, certain sections of the State being especially adapted for their growth. A number of varieties yield well but the McIntosh Red is the variety which has attained the greatest reputation. "The McIntosh and the Alexander apples," it has been said, "can be grown to perfection in Montana, better than any place in the world."

Statistics show that the annual production of apples in the United States is becoming less in proportion to consumption, and has actually been less in the aggregate the last few years than formerly. There is no danger of over production. The official figures since 1895 are as follows:

Year	Barrels
1895	60,540,000
1896	69,070,000
1897	41,536,000
1898	28,570,000
1899	37,560,000
1900	47,960,000
1901	26,970,000
1902	47,625,000
1903	45,000,000
1904	45,300,000
1905	23,500,000
1906	36,130,000
1907 (Estimated Oct. 7, U. S. Dep't. of Agriculture)	28,000,000

Fruitful Facts.

From the Fifth Biennial Report of the State Board of Horticulture a number of very interesting facts are taken. During the year 1907 a total of 361,408 fruit trees of all kinds were shipped into the State, while the number for 1908 was 446,500, making the enormous total for the two years 807,908. Besides these, no less than 782,000 trees were inspected in local nurseries. These figures, which do not include trees privately propagated, give some idea

of the rapid progress of horticulture in Montana, as well as directing attention to the future greatness of this industry.

Aside from the fruit trees, which embrace apple, pear, peach, plum, prune, cherry, apricot and quince trees, there were 21,839 shade, evergreen and ornamental trees, shrubs, roses and bulbs imported during the two years, as well as 646,323 small fruit plants.

The latter include black and dewberries, raspberries, mulberries, currants, gooseberries, strawberries, grapes and high bush cranberries. As showing the market in Montana for fruit and berries, it is stated that during 1907 and 1908 not less than 1,301 carloads of these products were inspected. This involved handling the enormous total of 1,008,435 packages, of which 187,442 were local freight and express shipments in Butte.

The inspection of all fruit resulted in the condemnation of 3,810 packages, which were destroyed by the inspectors.

It is also shown that 190 acres of land owned and operated by Montana nurseries were inspected and found to be entirely free from pests and diseases. The number of small plants inspected in these institutions is given at 185,000, and the trees at 782,000.

The report of the Board contains much valuable information, including an article by Hon. Fred Whitesides, the former secretary, on Dry Land Fruit Culture. There are instructions on planting, pruning and care of orchards; methods of packing fruit, and many recipes for mixing and applying sprays for the destruction of pests. This valuable work may be had by writing to Mr. Joseph W. Wallisch, 33 Hirbour Block, Butte.

The efficient work of the members and officers of the State Board of Horticulture, supported as they are by a very stringent and comprehensive inspection law, has resulted in a condition in Montana orchards which leaves nothing to be desired in the way of clean and perfect fruit. It has been well said that Montana produces the only apple grown which may be eaten in the dark with perfect safety and confidence. Not only is every shipment of trees from outside nurseries and every package of fruit from outside orchards inspected, but the district inspectors are required to visit and spray all local orchards, and they are empowered to destroy an entire fruit district if it should prove necessary to eradicate a pest.

While Montana is sending out several hundred carloads of apples yearly, some of the fruit going to foreign countries, the figures given above show in a degree the extent of the home market, and an idea of the time which must elapse before domestic production will equal domestic consumption.

There are many localities in the State which never have an opportunity to purchase home-grown fruit or berries because of the limited supply or the inability to overcome transportation difficulties.

In the solution of these problems there is practically unlimited opportunity for profitable and congenial occupation for many people. None of the really great fruit regions are in more than a preliminary stage of development and the returns are sufficiently large to satisfy any investor.

DAIRYING.

There are herds of fine dairy cattle in Montana but the output of the dairies falls far short of meeting the demands of the people. In November, 1908, there were 40 creameries, built at an average cost of $5,500, of which only 24 were in operation. The idle plants were built in communities where the farmers were not interested in dairying and have failed to supply the necessary milk. As population increases, particularly as new settlers from states where dairying has been a long established industry, come into Montana an increased interest may be aroused among all farmers, and especially among those who are situated near a steam or electric railroad The prices paid for butter fat range from 19 to 35 cents a pound. The Crescent Creamery at Butte, produces 30,000 pounds of butter a month, and the creamery at Townsend is in a most flourishing condition. The Montana Dairyman's Association is doing excellent work in promoting the extension of this industry. The room for dairymen will be better appreciated when it is real-

A Dairy Herd in the Deer Lodge Valley.

ized that the home market consumed the whole home product besides importing into the city of Butte alone, 1,047,000 pounds of butter in 1907.

The supply of eggs and poultry of home production likewise falls far short of meeting the local demands. In 1907 there were 1,872,000 pounds of eggs imported into Butte.

SUGAR BEETS.

Experiments made in various parts of Montana show the soil and climate are well adapted for growing sugar beets. The saccharine strength is uniformly high and the yield to the acre sometimes reaches twenty tons. There is reason to believe that a beet sugar factory will soon be constructed in the Milk River Valley and others are projected in various parts of the State. The only one now in operation is the Billings beet sugar factory which was constructed in 1906 at a cost of $1,250,000. The capacity of the plant is 1,000 tons a day and during the operating season it employs 450 people. About 125 employees are retained the entire year. The plant is operated by steam and annually consumes 35,000 tons of coal. The beet pulp is a valuable food

for fattening cattle and sheep.

The initial run of the factory consumed the beets raised on 7,000 acres of land, and the acreage has since been increased to 10,000. The factory pays $5 a ton for beets delivered at the receiving stations. During the season of 1909 it is expected that the factory will purchase 115,000

Irrigating Sugar Beets.

tons of beets at a cost in excess of $600,000. During the past year the average yield of sugar beets in the territory adjacent to Billings was 150 tons per acre, making the gross yield of the crop per acre $75. The business has been very profitable to both growers and manufacturers and has had a wonderful effect upon land values and the development of the country in every way. The success of the Billings factory should cause the erection of others in Montana.

GROWTH OF POPULATION.

The growth of population by decades is shown by the following table:

POPULATION OF MONTANA—1870-1900.

Census Years	Population	Increase	
		Number	Per Cent
1870	20,595	.....	.....
1880	39,159	18,564	90.1
1890	132,159	93,000	237.5
1900	243,595	111,170	84.1

The population in 1909 is estimated at from 300,000 to 325,000 and is rapidly increasing. The extent of the movement of new population into Montana is shown by the amount of business transacted at the United States Land Offices. The entries made in 1907 embraced 1,218,780 acres and

1,494,052 in 1908. For the first six months of 1909 in the Glasgow, Great Falls, Helena, Lewistown, and Miles City land offices, (Bozeman, Kalispell and Missoula not reporting) the public lands entered aggregated 1,010,499 acres.

THE GROWTH OF PROPERTY.

That wealth has increased as population has grown the following tables show:

TOTAL ASSESSED VALUATION OF ALL PROPERTY.

1898	$133,969,519	1901	$166,787,588	1905	$209,912,340
1900	153,401,591	1903	201,852,379	1908	248,774,792

TABLE SHOWING THE TOTAL ASSESSED VALUATION OF ALL CLASSES OF PROPERTY AFTER EQUALIZATION BY THE STATE AND COUNTY BOARDS OF EQUALIZATION FOR THE YEAR 1908.

COUNTIES	Acres of Land.	Real Estate and Improvements, Telegraph and Telephone Lines, Mining and Irrigating Ditches, Depots, Round Houses, and Station Grounds	Live Stock	Personal Property other than Livestock.	Railroads, except Railroad Lands, Gravel Beds, Station Grounds, Depots and Round Houses.	Grand Total.
Beaverhead	355,612	$ 2,820,975	$ 1,866,163	$ 852,219	$ 1,380,345	$ 6,919,702
Broadwater	211,890	1,119,904	469,836	329,407	759,231	678,378
Carbon	216,590	2,765,359	1,048,436	868,795	632,113	5,314,703
Cascade	940,307	11,976,569	1,452,190	2,865,561	1,850,643	18,144,963
Chouteau	595,674	3,551,921	2,938,234	1,296,549	4,846,008	12,632,632
Custer	1,451,825	4,038,859	3,881,940	1,398,966	1,872,345	11,192,110
Dawson	962,375	1,774,688	2,405,086	579,678	1,127,753	5,887,205
Deer Lodge	111,655	5,794,086	143,950	2,013,469	687,058	8,638,563
Flathead	1,226,343	7,331,525	358,599	1,635,679	4,168,310	13,494,113
Fergus	1,135,237	5,745,290	2,765,456	1,738,744	616,403	10,865,893
Gallatin	629,468	6,802,165	948,885	1,229,989	1,582,463	10,563,502
Granite	181,397	1,054,444	344,205	405,793	603,791	2,408,233
Jefferson	227,249	1,720,277	403,330	1,083,856	1,925,437	5,132,900
Lewis and Clark	518,434	11,924,630	948,650	4,730,666	1,709,229	19,313,175
Madison	485,598	3,114,188	1,209,057	1,270,163	715,911	6,309,319
Meagher	760,578	1,965,974	1,341,689	679,818	882,495	4,869,376
Missoula	742,845	6,666,473	387,032	2,749,448	2,738,167	12,541,120
Park	545,051	3,640,250	726,665	1,172,195	1,159,777	6,698,887
Powell	560,883	1,923,942	611,828	450,187	1,166,773	4,153,030
Ravalli	350,077	3,102,250	396,690	797,553	463,749	4,760,242
Rosebud	1,040,159	2,138,206	2,100,352	504,287	1,761,344	6,504,189
Sanders	328,342	1,373,771	98,161	446,467	1,973,365	3,891,764
Silver Bow	87,433	18,153,295	231,160	12,719,070	1,827,033	32,930,558
Sweet Grass	614,416	1,931,679	1,406,901	414,952	920,650	4,704,182
Teton	398,739	2,203,584	1,500,530	475,897	2,200,878	6,380,889
Valley	82,242	1,230,909	1,312,724	651,865	3,576,339	6,771,837
Yellowstone	986,468	8,453,616	1,716,060	2,108,272	2,795,379	15,073,327
	15,746,887	$124,318,239	33,013,869	$45,499,755	$45,942,989	$248,774,792

When the territory of Montana was established in 1864 the whole vast area was divided into the nine counties of Beaverhead, Big Horn, Chouteau, Deer Lodge, Edgerton, Gallatin, Jefferson, Madison and Missoula. The increase of population and the extension of settlement has made necessary the creation of new counties and in 1909 they number twenty-eight.

POPULATION OF MONTANA, BY COUNTIES, 1900.

NAME.	County Seat	Population in 1900
Beaverhead	Dillon	5,615
Broadwater	Townsend	2,641
Carbon	Red Lodge	7,533
Cascade	Great Falls	25,777
Chouteau	Fort Benton	10,966
Custer	Miles City	7,891
Dawson	Glendive	2,443
Deer Lodge	Anaconda	17,393
Fergus	Lewistown	6,937
Flathead	Kalispell	9,373
Gallaltin	Bozeman	9,553
Granite	Philipsburg	4,328
Jefferson	Boulder	5,330
Lewis and Clark	Helena	19,171
Lincoln	Libby	*
Madison	Virginia City	7,695
Meagher	White Sulphur Springs	2,526
Missoula	Missoula	13,964
Park	Livingston	7,341
Powell	Deer Lodge	*
Ravalli	Hamilton	7,822
Rosebud	Forsyth	*
Sanders	Thompson	*
Silver Bow	Butte	47,635
Sweet Grass	Big Timber	3,086
Teton	Chouteau	5,080
Valley	Glasgow	4,355
Yellowstone	Billings	6,212
Indians on Crow Reservation		2,660
		243,327

*Counties created since 1900.

From the foregoing it will be seen that Montana is in the infancy of its development. Much has been accomplished but more remains to be done. The work of founding the commonwealth, clearing the way, proving the soil, and making a start in various industries has been begun. The experiments made by others inure to the benefit of those who come now. They are invited to share in the benefits of a community having all the advantages of an advanced civilization without undergoing the hardships of pioneer life.

Montana has the land and the resources to sustain a large population and has now but a small one. There are mines waiting to be opened, new industries which are to be started, and millions of acres of fertile soil which will provide homes and support for hundreds of thousands of settlers. Who may, at this time, attempt to forecast the greatness of Montana's future? To what population will it attain? When the population is as great per square mile as was that of North Dakota in 1900, the inhabitants of Montana will number 647,360, and 859,616 when it is settled as thickly as Colorado was in the same year. When the population equals in density that of Washington in 1900 it will be 1,124,816, and when it equals Minnesota in this respect 3,228,368. When the population of Montana per square mile shall equal that of the average of the United States in 1900 it will be 3,752,000.

SCENERY.

The scenery of Montana is of varied beauty, picturesqueness and grandeur, and is an asset of unique value to the State. Along the lower course of the Missouri River are curiously carved rock formations. Near Helena are the lovely "Gates of the Mountains" which have been compared in beauty with the Grand Canyon of the Yellowstone. Prof. Canby of the transcontinental survey of 1883, wrote: "These gentlemen of our party who had visited the Yosemite Valley considered the scenery of Marias Pass to be of a more varied character and grander in every respect." The mountains south of the Yellowstone in Carbon, Sweet Grass and Park counties contain

high peaks, beautiful lakes and mountain streams. A curiosity is the Grasshopper Glacier. On the Boulder River is a wonderful natural bridge. Near Bozeman is the beautiful Bridger Canyon and river and mountain scenery scarcely equalled anywhere. The Yellowstone from its source to its mouth is a beautiful river set in a picturesque frame. The Northern Pacific Railway in its route through Rocky Canyon, west of Bozeman tunnel and the Jefferson Canyon, and in climbing the divide east of Butte passes through some of the finest scenery in America. On the Madison, the Jefferson, the Hellgate, the Bitter Root and Clark's Fork of the Columbia are many scenes of beauty. In passing through Sixteen Mile Canyon, east of Lombard, passengers on trains on the Milwaukee railroad view scenery they will never forget. The Great Northern also, both in the Montana Central division and on the main line, east and west of the Continental Divide, passes through a region of beautiful streams and lakes and within sight of rugged mountain ranges. A picturesque section of the State is also traversed by the Oregon Short Line.

St. Mary's Lake, Glacier Park

One of the scenic wonders of America are the cascades constituting the Great Falls of the Missouri River, and beautiful cascades may be seen in Sweet Grass, Gallatin and other counties. Throughout the mountain region, indeed, are scattered scenes which would command the admiration of the landscape painter.

In western Montana is the Lake McDonald region which surpasses Switzerland in grandeur of scenery. It has been proposed that this region of lakes and waterfalls, of mountains and glaciers, be preserved in all its wild grandeur and set aside as a national park to be known as the Glacier Park.

Pyramid Peak, Glacier Park.

The artist, the tourist, the man or woman of aesthetic taste will find Montana a land of wonder and delight. To the geologist and the botanist;

to those who take an outing for recreation; to the hunter and the fisherman, to those who love nature in her wild moods, a visit to the mountains of Montana will prove a delightful experience.

Amidst the grand and beautiful scenery of Montana are many pictures not made by man which those who have the means for gratifying a taste for scenic beauty will be well repaid for visiting. The man, however, who is visiting the State in search of a place at which to locate, is not, as the Hinsdale Homestead remarks, interested in descriptions of such scenes. For the homeseekers Montana unfolds another picture, a picture of waving fields of golden grain; of orchards of fruit laden trees; of green pastures, of horses, cattle, sheep and hogs, and of farmsteads which intelligent and industrious settlers have built up in a few years by their own efforts.

A Hunter's Camp.

THE COUNTIES.

Each One Has Advantages, Offers Splendid Opportunities for the Home-seeker and Capitalist, and Invites an Inspection of Its Resources.

BEAVERHEAD COUNTY.

Probably the most satisfactory advertisement of the resources of Beaverhead County and the opportunities which it offers to settlers, will be a concise and accurate statement of what has been accomplished, presenting at the same time reliable information as to economic conditions existing in the county.

Beaverhead is one of the oldest of the State, having received its first influx of population in '63, when the gold miners pressed into this region. Very shortly afterward lands began to be taken up for agricultural and grazing purposes. Very naturally those that could be most easily irrigated were the first to be claimed, and all such lands have long since been appropriated, together with the water for irrigating them. It may as well be stated at once that there are in Beaverhead County no bottom lands along the streams now available to settlers, except by purchase.

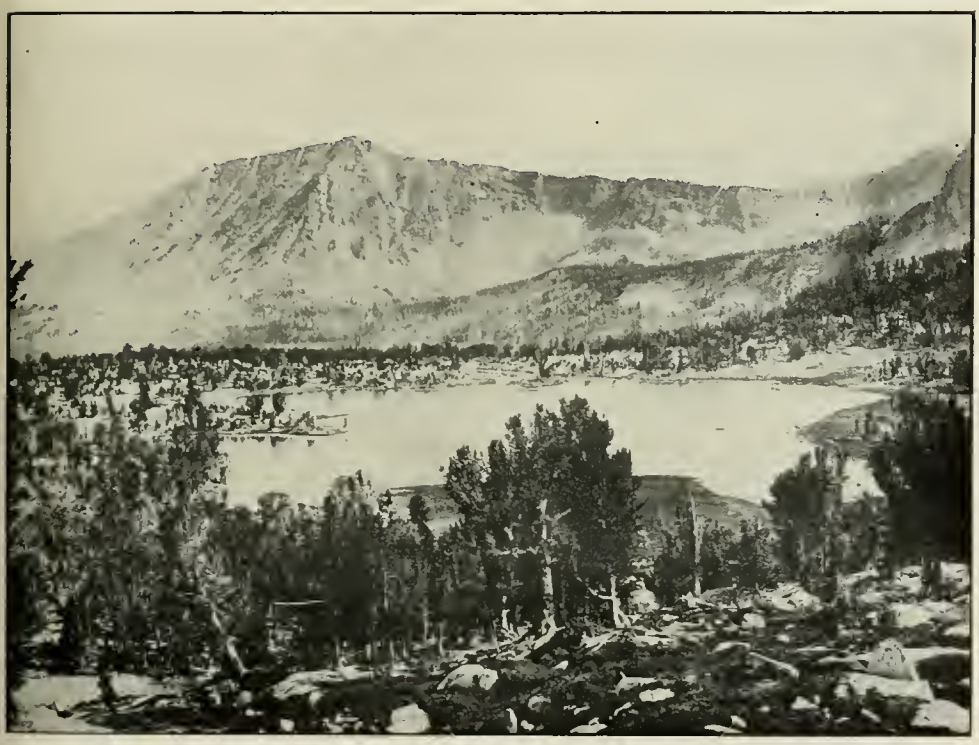
A few words as to the topography and climatic conditons may be appropriate. A large proportion of the county is very rough, running into high mountain ranges, reaching elevations of nine to eleven thousand feet. The arable parts of the county consist of two large valleys, the Beaverhead and the Big Hole Basin. The Beaverhead Valley is the oldest settled part of the county; connecting with it are the Blacktail, Rattlesnake and Grasshopper Valleys and Horse Prairie. The lands along the lower course of these streams are all farmed. Nearer their heads there are valuable hay and grazing lands. The elevation of the valleys here mentioned is from 5,000 feet above sea level along the Beaverhead River to 6,500 feet toward the headwaters of its tributaries. The average annual precipitation of moisture is 16.32 inches. Killing frosts usually occur about the fifteenth of September, but in favorable years do not come until several weeks later.

The soil of the bottom lands over the greater part of the county, consists of a heavy, claey loam, which is very productive. The higher, or bench lands, show a more porous, gravelly soil, very deep and containing much disintegrated lime and granitic rock. It is upon these very fertile higher bench lands that some of the best ranches are situated.

Beaverhead Valley, like some of the other renowned valleys of the State, is often a surprise and a joy to the eye of the observant traveller, especially in the summer or early autumn, when crops are maturing.

The principal crop is oats, and the yield is phenomenal, 50 to 60 bushels to the acre being the usual crop under ordinary circumstances and 100 bushels or more to the acre under exceptionally favorable conditions. The next most important crop is alfalfa of which two cuttings are made in a season. Timothy hay is very largely produced. While much of the alfalfa and timothy is shipped, yet the greater part of the crop is for local consumption.

The market for oats is unfailing. Beaverhead County oats are celebrated for their quality, weighing over 40 pounds to the bushel, the county being regarded as one of the granaries of the State. Almost the entire enormous crop of oats is shipped to other points, shipments from Dillon, Dell and other stations on the Oregon Short Line Railroad, aggregating, in 1908, a total of



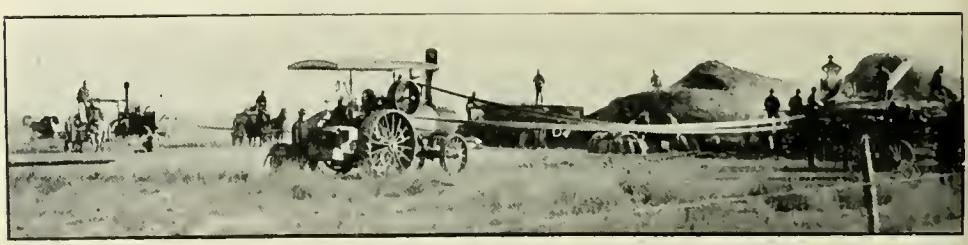
An Irrigation Storage Reservoir.

over 750 carloads. The shipments of hay during the same year were 500 cars. It is unnecessary to add that at the price realized for oats during the past few years farming in Beaverhead Valley is immensely profitable.

Reference should here be made to the stock industry, which has produced a great part of the wealth of this region. In a general way it may be said that the stock industry offers no opportunity to the settler. Both cattle and sheep are herded upon the public range during a part of the year and it is upon access to unoccupied grazing range that success in these lines depends. Such opportunities are quickly seen and seized by young men who have been raised in the county and experienced in the business of handling cattle and sheep. On many of the large ranches not only is farming extensively done, but sheep, cattle and horses are handled in addition. The importance of these lines

as wealth producers is indicated by the shipments, 150 cars of mutton sheep, 71 cars of wool and approximately 1,500 cars of fattened beef cattle having been shipped from points in the county in 1908. Of this beef over 1,000 cars were fattened in the Big Hole Basin and shipped from there.

The Big Hole Basin is one of the most astounding regions in the West when its record of success and wealth production is considered. This valley lies parallel to the Beaverhead Valley, a great mountain range seperating them. The Basin has an elevation of 6,500 to 7,000 feet, too high for raising grain except in most favored situations. The area of the Basin is approximately 600 square miles. It has been settled during the last twenty years and the most desirable lands are occupied. The snowfall in winter is tremendous, yet this lofty, forbidding valley has a most wonderful resource. The native grasses which abound are marvellously nutritious. Wild hay is produced which will fatten beef. Steers are bought in the fall in the neighboring states, Idaho, Utah and Oregon, they are fed on this wild hay during the winter and are sold as beef in the spring. Over 20,000 beeves were fed in the Big Hole Basin during the winter 1908-9. They have been sold, bringing their owners over one and a quarter million of dollars.



Hay is the only crop of the Big Hole Basin and it is made on a collossal scale, all the most approved methods and the newest, most ingenious devices being employed in securing the crop. In the fall the valley presents to the observer upon a point of vantage the appearance of a vast hayfield, the huge hay stacks so numerous that they give from a distance the impresson of haycocks in a field. Big Hole Basin offers, among its residents, many conspicuous examples of rapid financial success and the record of the valley may be said to be a monument to the character, enterprise and ability of its inhabitants, a record that will undoubtedly be the encouragement of beginners.

Such examples of pre-eminent success are not restricted to the Big Hole Basin. The Beaverhead Valley offers similar ones. Romantic stories could be told of men who a few years ago were penniless and who are now rich, even according to the standard of the present day. Especially frequent are these illustrations of success in the cattle and sheep industry. These stories prove nothing, but where much has been done surely something yet remains for the enterprising man to accomplish. Opportunities exist to-day, as heretofore, only they do not always present themselves in the same form. It is a matter of recognizing them.

From the foregoing it may be concluded that the resources of the county are fairly well developed and that but little chance remains for the new settler. This is, however, not the case. It remains to describe "openings" which

Harvesting the Magnificent Crop.

should be of interest to the prospective settler. Attention has heretofore been called to the fact that the earliest settlers appropriated the most accessible and easily irrigated bottom lands. Availing themselves of their opportunity, they gradually acquired possession of immense areas of these fertile lands. Many of these great holdings are still intact, but under the operation of rapidly increasing land values they will soon be sub-divided and put on the market. "The big ranches will soon be broken up" is a remark often heard. Here is an opportunity for the settler controlling some capital. The productiveness of our soil and the character of our markets will naturally make investment in such lands very attractive. The earliest settlers little dreamed of the agricultural possibilities of the bench lands, which they thought valuable only for grazing. By far the larger part of the oat crop is produced upon bench lands. The term "bench" is applied to the higher region on either side of the valley, lying between the bottoms and the distant foothills. The benches are usually sharply separated from the river lands by a steep bluff, are comparatively level and show only a gentle up grade to the hills. Water for irrigation can be brought upon these high lands only at great expense as it must necessarily be diverted from the river many miles above the lands to be irrigated, in order to secure the elevation. Benches which can be irrigated by existing systems of canals have long since been acquired by private owners and are under cultivaton, but the recent completion of the great Lima reservoir gives promise of an increase in the acreage of irrigated lands.

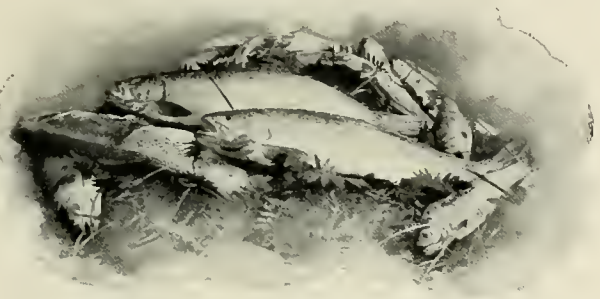
This very important engineering work will unquestionably be an influence in the further development of the agricultural resources of the county. At present there is no more water available to new settlers for purposes of irrigation. All the water in the streams in ordinary seasons has been appropriated and ownership as well as priority of water rights have been judicially determined. In the Lima reservoir there is a promise of relief. The dam at Lima forms a reservoir in which are stored the waters of the river in seasons when there is no irrigation done, namely in the fall and winter. These impounded waters will be turned back into the river during the summer when the flow in the water-courses is lowest. Water purchased from the reservoir company may be taken from the river at any point below. We have referred to the fact that many of the fertile bench lands are still open for settlement, the unoccupied tracts being the greater part of a number of townships. It seems practicable to run ditches which would reach lands situated at a much higher level than any covered by existing ditches. The extraordinary fertility of these lands has been demonstrated, and they could, if supplied with water, be cultivated

Oats which yield 80 to 100 bushels to the acre.

Oats Which Yield 80 to 100 Pounds to the Bushel.

by methods long understood and which make the yield of large crops an absolute certainty. The proposition of constructing canals for reaching the bench lands, being one of merit and importance, will undoubtedly receive due consideration.

We now reach the discussion of the so-called "dry-farming" operations. It has been proven that in a region in which the annual rain-fall is 15 or 16 inches, as it is here, farming can be successfully done without a drop of water for irrigation, by simply conserving within the soil itself the natural rainfall, preventing its evaporation by scientific methods. The determination of these facts directed attention to the supposed arid lands of the West, lands which will soon produce a very considerable part of the grain supply of the country.



Beaverhead County has extensive areas of rich lands for which water is not at present available. These lands are open to settlers and judging by experiment, they can be farmed without irrigation. Tests of the scientific methods have been conducted for several years. Astonishing stands of grain have been produced upon dry farms. Potatoes netting a profit of $30 an acre have been produced. The possibilities of dry farming in Beaverhead County deserve the serious consideration of prospective settlers.

Although many bushels of wheat are raised, there is no flouring mill in the county, probably for the reason that it pays better to raise oats and ship in flour.

The situation in this county may be summarized as follows: There are many openings in Beaverhead County, especially for men of enterprise, industry and intelligence, who command some capital or credit. Beaverhead County is wide awake, prosperous and progressive. Mineral deposits of great value are known to exist, which have not been fully prospected, much less developed. The opening of mines is only a question of time.

Dillon is a beautiful place of residence with water works, electric lights and sewers. It is an educational center, possessing public schools, the county high school and the State Normal College. It is a city of fine residences, shady streets and modern in appearance.

In the Big Hole Basin is the live town of Wisdom, with good schools, stores carrying large stocks of goods, a business and social center for that region.

On the upper Beaverhead is the town of Dell, also with good schools and surrounded by immense areas of rich grain lands. It can be safely said that those who will investigate the opportunities offered in Beaverhead County, in farming, stock raising or mining will find much to attract them.

BROADWATER COUNTY.

Broadwater, one of the smallest counties, situated on the Missouri River within easy shipping distance of the large cities of Helena and Butte, and with many mining camps furnishing a home market, offers splendid opportunities to the right kind of settler.

The leading industries are mining, stock-raising and farming. The low lands along the Missouri River and Crow Creek were picked out as homes by the pioneers of forty years ago and have produced large crops every year.

Shipping Grain—Townsend.

All of the low lands and much of the lower benches are now irrigated and plans for greatly increasing the area of lands under ditch are under consideration. Irrigated and improved farms can be bought at moderate prices ranging from $20 to $50 per acre. They produce from 40 to 100 bushels of grain and from 5 to 10 tons of hay per acre. The grain crops are wheat, barley and oats, and a ready market is found for all products of the farm.

A large irrigation scheme is projected. It contemplates the construction of a canal which will take water from the Missouri River above Toston and when completed along the high line survey will afford water for irrigating over 30,000 acres of land on the right bank of the river. An extension would furnish water for 50,000 acres in Crow Creek Valley.

During the past few years thousands of acres of foot hill lands have been cultivated and good crops raised without irrigation. A large part of this country is particularly well suited for dry land farming. Usually the rainfall in the spring and early summer is ample to assure good yields of all crops properly planted and cultivated. The land is warm, loamy, easy to work and very productive, giving abundant returns, especially in winter wheat, rye and bald barley, and producing as much hay as the irrigated lands when once stocked in alfalfa.

On land considered worthless for farming a short time ago, one farmer on the lower bench below Confederate Creek, averaged 30 bushels of grain on 40 acres without irrigation. Another farmer on the upper bench of Cottonwood Creek, who is farming several hundred acres of non-irrigated land had to buy a threshing machine in order to get his grain threshed on time. Sixty bushels of grain per acre was the average of his crop last year and his wheat brought the highest market price.

There are thousands of acres of land in the foot hills and mountain meadows subject to homestead entry. Commencing at the north end of the county, near Canyon Ferry, is a stretch of level land, three to five miles in width, extending ten miles south to Confederate Creek. From there on up the Missouri River for 25 miles the lands are more broken but extend further

How Would You Like a Farm Like This? "There are Others."

back into the mountains, where the rain and snow fall is greater than in the valley. On the south side of Crow Creek, beyond the line of irrigated farms is a large area of level bench land well adapted to dry farming. Much of this land is Government land, subject to homestead entry at the Helena land office; on most of it flowing water for domestic purposes can be had. Many homesteads have been taken up this spring.

Broadwater County has become famous in the last few years for the quality of her white oats. In 1908 over 250,000 bushels of oats were harvested; it is the principal crop of the irrigated farms, but does well on the higher benches. No better oats are raised anywhere; they are in demand for cereal factories and quantities of this grain have been shipped as far east as Boston for feeding fine horses.

A large amount of wheat is grown. Winter wheat is the principal crop on the foot-hills, while spring wheat does better on the bottom lands.

A Broadwater County Mine.

Blue-joint is the native grass, makes the best hay in the world and contains nearly as much nutriment as grain. Timothy hay is an important crop. Alfalfa, however, is the chief hay crop. It is raised on all the established ranches and after it has secured a good stand yields profusely for years a good hay for stock.

Potatoes are a money making crop. In fair years the yield is from 300 to 400 bushels to the acre of a quality so superior that they sell for fancy prices in the eastern markets.

Over 200 carloads of oats were shipped from Broadwater County last year, besides many cars of wheat, rye and barley. The price of grain this year has ranged from $1.25 to $2.25 per hundred pounds. Many carloads of hay have been shipped from Townsend and Toston, alfalfa hay usually selling for $10 a ton, and timothy from $13 to $14 on board of cars. Potatoes are unusually high this spring and have sold from $1.50 to $2.50 per hundred pounds. Several carloads of apples and crab-apples were shipped, bringing $1.25 to $1.50 per box. The raising of apples and other fruit is a new industry, but a number of large apple orchards have been set out and it has been proven conclusively that apples will grow as sweet and as highly flavored as in any other place. Heretofore they have been a by-product and few have taken the time to learn what varietes are best adapted to the country, how trees should be cared for, and how apples should be marketed; but a number are now studying the various phases of the fruit business and taking advantage of the teachings of the Agricultural Experiment Station at Bozeman.

Broadwater County claims to have the best horses in the State. For 25 years a policy of constantly improving the breed of horses has been pursued, some of the great horse ranches having imported and bred the best horses money could buy. In the fifty registered, pure-bred stallions, all breeds are

represented, from the little Shetland, weighing 350, to the big drafter weighing over 2,200 pounds.

There are several fine herds of cattle, the beef brands including Shorthorn, Herefords and Polled Angus. Since the establishment of the creamery great pains have been taken in securing first-class dairy stock and now there are several herds of Jerseys, Holsteins and Red Polls.

The creamery at Townsend is the pride of the people of the county. It was built in 1904, fifty farmers and local business men buying the stock and furnishing the funds to start it. From a small beginning the business has steadily increased, the output last year amounting to 124,000 pounds of butter, most of which was sold at Helena where it brought a fancy price on account of its superior quality. The average price received last year was 29 3-4 cents per pound, and the same price was paid to the patrons of the creamery for butter fat. At this price a fair grade cow will yield an annual income of about $70 and a real good milker a greater sum. Many farmers find it very profitable to milk for the creamery and welcome visitors are the checks they receive promptly on the 10th of each month. A family having ten to twenty acres of good land and 20 cows can make a good living by selling the milk.

Hog cholera has never been known in Broadwater County and the raising of hogs is a profitable industry. There are pure-bred herds of Poland China, Chester White, Berkshires, Duroc, Jerseys and Hampshires. The sheep industry has been mostly in the hands of the large sheep men who own from 2,000 to 10,000 sheep and large tracts of land. There is now a tendency among farmers to raise sheep in small flocks. The sheep business has been very profitable and the sheep men have become wealthy.

The enterprising citizens of the county have established a county fair and the exhibits held at the first fair, 1908, at Townsend, surprised those who thought they knew most about the products of the county. Among them were corn stalks measuring nine feet and four inches, macaroni wheat stalks seven and a half feet high and a display of fruits and apples that it would be hard to equal anywhere. The fair this fall will be a hummer and those looking for homes, for stock or for produce are invited to attend. At the State Fair, held in Helena, Broadwater County got the blue ribbon on nearly all her exhibits. For three years she has carried away the premiums on Percheron horses; last year took the sweepstakes on draft stallions; and five horses each of a different type, each took a first prize. Many premiums have been awarded to individuals within the past three years, and Broadwater County has taken a State Fair first for county collective and second on educational exhibits.

Broadwater County is one of the richest mineral belts in the country. Mining has long been a leading industry and the production of the precious metals has been immense. There is no space in this article to describe the different mining districts or the mines, but it may be safely said that there are inviting opportunities for the investment of capital in the purchase of producing and in the development of mineral properties which have not yet reached the producing stage.

Broadwater County has a good school system. There are twenty school

districts, a county high-school, and in 1908 over $31,000 was spent for school purposes.

Townsend, the county seat, located where the Northern Pacific Railway crosses the Missouri River, is the principal town, the social, financial and educational center of the county. It is a progressive town, owning its electric light plant, having a volunteer fire department, over five miles of side walks and graded streets, and an unusual number of fine residences. There are four churches—Catholic, Episcopal, Methodist, and Methodist South, and lodges of the principal secret societies. Railroad, express, telegraph and telephone service provides for necessities and add to the comforts of life.

By nature and situation Townsend is peculiarly adapted for the successful operation of a flouring mill and the establishment of one is desired by the citizens of the place. It is located on the main line of the Northern Pacific Railway and in the center of a large tract of fine wheat land. Many carloads of wheat are shipped from the county every year and many carloads of flour and feed shipped in.

An alfalfa mill would also be a paying investment. The farms of the county raise in almost unlimited quantities alfalfa of the best quality. Townsend wants, also, a beet sugar factory. The soil has been tested and found to be especially adapted to the raising of sugar beets. It is expected that matters will be arranged within a short time for the erection of a beet sugar factory, the erection of which would cause the prices of farm lands to advance materially.

Other towns are Toston, Radersburg and Winston. The country offers to the tourist much beautiful scenery. There are many ideal camping places and streams well stocked with speckled trout. In season the hunter can shoot grouse, prairie chickens, pheasants, sage hens, ducks, and geese; the blacktail deer are fairly plentiful in the higher hills.

CARBON COUNTY.

Carbon County, organized in 1895, soon after the segregation of the territory comprising the county from the Crow Indian Reservation, has been rapidly settled and its growth has been marvellous. Bounded on the north by the Beartooth Mounains, from which spring several large rivers, and numberless streams, the lands of Carbon County are especially well watered. Its soil is productive and its climate healthful and invigorating. While essentially a farming, fruitgrowing and stock raising county, Carbon is also the chief coal producing section of the Northwest. It has the largest, best known and most inexhaustible coal measures in Montana, which are extensively operated, thus affording a permanent and constant home market for the products of the farms. The presence of these three industries—each flourishing, and helpful to the others—insures the prosperity of the whole community.

Twelve coal mining plants are in operation in Carbon County, viz: The Northwestern Improvement Company's two plants in Red Lodge which employ 1,000 men. The Montana Coal Co., the Bear Creek Coal Co., the International Coal Co., the Smokeless & Sootless Coal Co., all at Bear Creek and employing an average of 400 men. The Washoe Copper Co., (coal depart-

ment) at Washoe, (developing) employing now 135 men; the Bituminous Coal Company at Coalville, employng 112 men; the Bridger Coal Co., at Bridger, employing 92 men; Killorn & Weber at Fromberg, employing 21 men; Joliet Coal and Iron Co., at Joliet, employing 5 men, and the Montana Fuel and Iron Company, at Joliet, employing 3 men.

For the year ending October 31, 1908, 942,468 tons of coal were produced in Carbon County. During the past year extensive development work has been done at Red Lodge, Washoe and Bear Creek, and the coming season will show a very large increase in the production and in the number of men employed.

Carbon County has over 600,000 acres of unappropriated Government land. This land is almost all on the divides between the principal streams which traverse the county from the mountains on the south, emptying into the Yellowstone River on the north. These streams are the Stillwater, the two Rosebuds, Rock Creek and Clark's Fork and their tributaries. With the exception of Clark's Fork all of them have heavy falls, so that the water can

A Farm with 1,000 Fruit Trees.

be carried by ditches over the higher lands between with comparatively slight expense. They furnish ample irrigating water for all the settled lands and then their full capacity is not nearly reached, as is proven by the fact that the rights to the water of but one stream, Rock Creek, have been adjudicated.

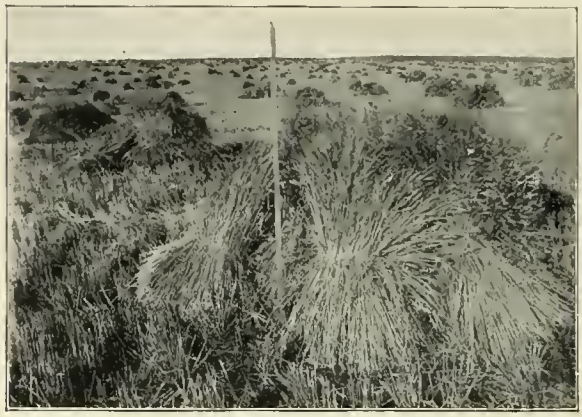
Of the 600,000 acres, at least one-fourth, or 125,000 acres are suitable for dry farming. Most of this land is between Rock Creek and the Rosebuds and Stillwater. The soil is principally a black, sandy loam, and abounds in springs and small streams.

Dry farming has been successfully practiced for several years in the southern part of the above territory, and the yield of crops has compared very favorably with adjoining irrigated lands. The principal crops are wheat, oats and barley. Yields average for oats from 60 to 90 bushels, wheat 30 to 40 bushels, and barley from 40 to 45 bushels per acre.

Last year's crop of oats in Carbon County was approximately 145,000 bushels. The average paid for oats was $1.40 per cwt; wheat $1.35 per cwt; and barley $1 per cwt. Alfalfa seed brought from 13 cents to 14 cents per pound and timothy seed about 3 1-2 cents per pound.

There is one grain elevator and numerous grain warehouses throughout the county. The Hawkeye Elevator built a 30,000 bushel capacity elevator at Red Lodge in 1908, at a cost of $7,500. In 1908 this company handled

70,650 bushels of oats, 3,000 bushels of wheat and 3,000 bushels of barley. This however, is not a fair sample of what is to be expected, as the 1908 crop was very light, and the elevator just starting in business. The amount of grain handled the coming season will greatly exceed the above amounts.



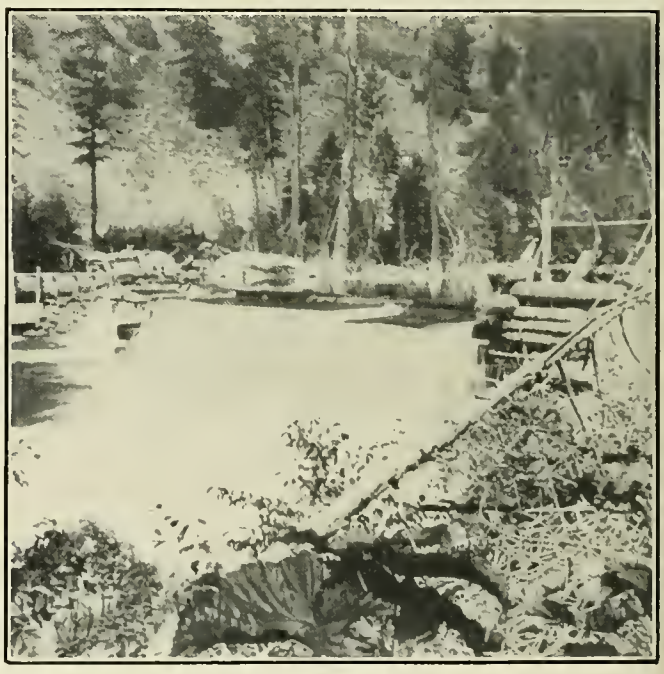
None Better Anywhere.

There are creameries at Bridger, Red Lodge and Fishtail. The creamery at Red Lodge has operated continuously since it was built in 1906. Ninety thousand pounds of butter were produced at this creamery in 1908, and the average price for butter fat was from 23 cents to 32 cents per pound.

Joliet has a flour mill of 200 barrels capacity. Ten thousand barrels of flour were turned out of this mill in 1908. The plant was erected at a cost of $50,000. There are other good locations for flour mills which will be utilized when the wheat supply is increased

There is much fertile land on Fishtail Creek and the West Rosebud River.

The most important agricultural section of the county is the Clark's Fork Valley, which is one of the most productive portions of Montana, furnishing as great a variety in products of agriculture and horticulture as may be found in the State, from wheat to corn. The valley, varying in width from four to ten miles, is nearly one hundred miles long, extending from Laurel, Montana to Wyoming. Transportation facilities are furnished by a branch line of the Northern Pacific railroad from Billings.



An Irrigation Source.

The soil is fertile and the climate good. The farms are usually 160 acres,

or smaller, in size and the most productive are irrigated. The densest settlement is between Silesia and Bridger.

Sugar beets are extensively grown and are shipped to the Billings beet sugar factory. All grains and grasses yield prolifically. Apples, plums, pears, peaches, watermelons and cantaloupes are grown to perfection. Even a little tobacco is grown for home consumption. The cantaloupes are said to be equal in flavor to those grown at Rockyford, Colorado; and if they were grown in quantities so that shipments in carload lots could be made at regular intervals they would be eagerly bought by residents of Montana at prices assuring large profits to the growers.

Fruit grows to a good size, is excellent in flavor and appearance, is free from worms and possesses splendid keeping qualities. In this valley near Fromberg, is the celebrated Clark orchard. In 1908 this 32 acre orchard produced just $10,000 worth of apples, plums and crab apples.

The Boys Catch 'Em.

On irrigated lands the principal crops vary with the altitude. In the southern central portion of the county, where the altitude is about 5,000 feet, the chief crops are wheat, barley, oats, potatoes and timothy hay, all of which yield above the average, and are of exceptional quality, as instanced by oats weighing from 40 to 45 pounds to the bushel. In the lower altitude to the above mentioned crops may be added alfalfa hay, sugar beets and apples.

These irrigated lands are largely supplied with water from individual rights, or an interest in a neighborhood ditch, there being comparatively few incorporated ditch companies, and the water right sells with the land. Such lands sell at from $25 to $50 per acre, until the fruit belt is reached and then the price advances to $100 to $150 per acre, the prices depending upon location, fitness for special crops and improvements. Such lands are selling at prices which will seem low a few years from now. Unirrigated lands can be bought for $10 per acre or less.

Red Lodge, the county seat, is the largest town and it has an estimated population of from 5,000 to 5,500. The city owns its own water works, which is a most excellent system, originally costing $35,000, and is now valued at

$75,000. The city is this season putting in a $30,000 sewerage system, which will be completed by November 1, 1909. Between twelve and fifteen miles of concrete sidewalk are now completed, and more walk is being added continually. The city expects to pave five or six blocks in the business section this year, if possible.

Red Lodge is an excellent town for business, as the monthly pay-roll of the mines alone is from $80,000 to $100,000 saying nothing of the large amounts received from other forms of employment and from the rich agricultural sections adjoining. Business failures in Red Lodge are almost unknown.

Other thriving towns are Absarokee in the Stillwater River section; Fishtail, in the eastern section of the county; Joliet, on lower Rock Creek, which is the trading point of a rich farming and fruit country and where a water works system and an electric light plant are being installed; Fromberg in the center of the richest part of Clark's Fork Valley; Bridger in the same valley, having both agriculture and coal mining as the basis of its prosperity; Belfry, a railroad junction and trading place and Bear Creek, where are five coal mines.

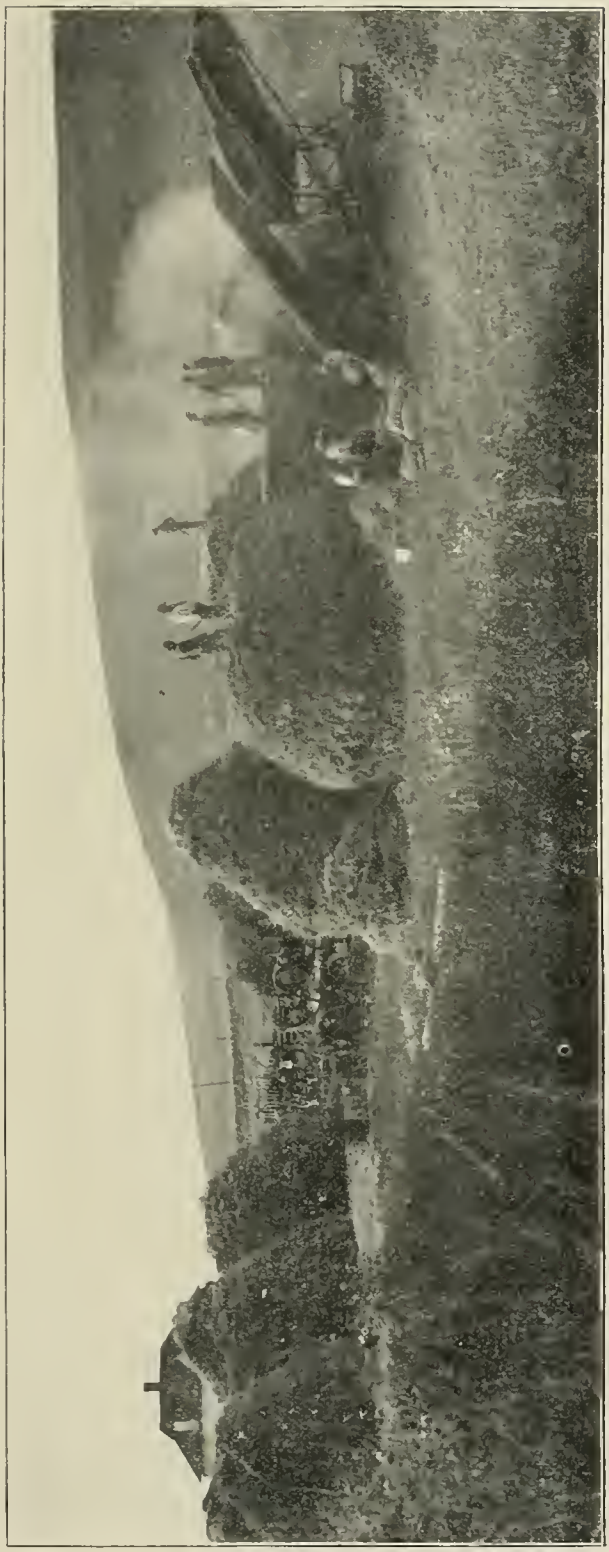
There is a strong probability that oil will be found in Clark's Fork Valley. In the mountains are mining claims, showing ores of gold, silver, lead and copper.

As a place for an outing Carbon County offers many attractions; the climate is healthy; the streams are filled with trout; the foothills furnish fine hunting of small and feathered game, while all kinds of large game are to be found farther back; and the forests, the streams, the lakes and the mountains contain some of the most picturesque scenery in America.

CASCADE COUNTY.

Cascade is one of the most populous and important counties of the State. It lies in what is known as the chinook belt where the warm coast breezes after passing the mountains are deflected downward and moderate the winter temperature. Because of this, stock run on pasture during the entire year, and it is necessary to feed them only during the short cold spells when the north wind blows. The lowest temperature ever recorded was in January, 1909, and the temperature then remained below zero only for ten days. For a period of ten years the absolute maximum temperatures range from 60 degrees above zero in December to 106 degrees in August, which is the highest temperature ever recorded at Great Falls. The mean of the maximum temperatures varied from 35 degrees above zero in January to 83 degrees in July, and the mean of the minimum from 14 degrees below zero in January to 54 degrees above in July. The study of the range of temperatures is apt to create a wrong impression. While the annual range of temperature is probably as large as in any other part of the United States, the periods of low temperature are of short duration and are attended by a dry, calm atmosphere, For this reason the low winter temperatures are not as severe as much higher temperatures would be under less favorable conditions.

Cascade County has a relatively large percentage of agricultural land and most of it is farmed without irrigation. Those who have engaged in farming



Threshing Non-Irrigated Grain.

have found it very profitable. The soil as a rule is a loam with a clay subsoil, but varies in different localites. All kinds of grain are grown and occassionally a field of corn. In some sections timothy and clover is grown, but on the rolling benches alfalfa is the main hay and forage crop. The native blue-joint makes excellent hay and brings the top price on the market.

There is still some homestead land to be had, but it is being rapidly taken up. There is no sage brush land in the county. The soil is covered naturally with a heavy sod, so that the preparation of the land for growing crops is simply to turn it over with a breaking plow. The yields of grain run from 20 to 60 bushels of wheat, 25 to 115 bushels of oats, 20 to 60 bushels of barley, 2 1-2 to 5 tons of alfalfa, etc., per acre, without irrigation. On irrigated land the yield is more uniform. The number of steam and gasoline plowing outfits is being constantly increased. Grain growing on a large scale is being undertaken by many.

Grain elevators will soon be found at every siding and some of the towns now have two or more. There are four elevator companies operating in this part of the State. The Royal Milling Co. is a large purchaser of grain for grinding at their mills at Great Falls.

The table presented herewith gives a list of the farmers and their crops of different kinds of grain grown during the year. The total shows that in the tract six miles square there were grown during the year approximately 100,000 bushels of grain.

YIELDS FOR ONE YEAR IN T. 18 N, R. 2 E.

NAME	Oats	Wheat	Rye	Barley	Millet	Totals
J. H. Daly	2,467	2,355	.....	177	.....	4,999
A. Johnson	2,079	2,802	68	.....	.....	4,949
John Perrin	2,158	5,162	398	.....	54	7,772
Jas. Perrin	646	675	.....	.....	12	1,333
Dave Cummings	1,479	4,169	683	814	.....	7,145
H. Perry	1,207	.....	.. ..	....	.....	1,207
Chas. Morgan	232	849	.....	.....	.....	1,081
—— Oliver	3,080	4,314	99	.....	.....	7,493
Al. Eller	150	59	.....	.....	.....	209
David Symes	1,724	1,124	.....	.....	.....	2,848
T. C. King	6,712	1,300	900	.....	.....	8,912
M. S. Morehead	2,000	4,000	.....	.....	.....	6,000
Alfred Elier	735	.....	.....	.....	132	867
Will Stone	1,104	832	78	.....	20	2,034
Sam Richmond	2,400	.....	.....	.....	.....	2,400
Wm. Robertson	1,200	1,000	.....	.....	.....	2,200
O. H. Pederson	2,000	1,700	.....	.....	.....	3,700
Jentry Baker	475	.....	.....	.....	.....	475
Jon. Donnat	115	50	70	168	.....	703
Saml. Klock	439	1,043	.....	325	.....	1,807
Ed. Eller	546	728	.....	.....	.....	1,274
Chas. Flanagan	907	926	.....	82	.....	1,915
—— Baker	1,087	1,251	.....	.....	.....	2,338
Q. Tucker	1,169	1,920	.....	.....	.....	3,089
—— Kranston	982	2,711	53	450	.....	4,199
—— Furrow	1,600	2,008	.....	.....	.....	3,608
Frank Givens	5,882	1,162	.....	286	.....	7,330
H. D. Evans	2,460	.....	.....	.....	.....	2,460
A. Vos	3,500	1,616	516	.....	.....	5,632
TOTALS	50,775	43,759	2,865	2,302	218	99,918

The chief irrigated areas of this county are in the Sun River Valley, the Chestnut valley, the valley of the Muddy, and along Belt Creek and its tributaries.

In the Chestnut Valley and in the Belt Valley are a number of thriving orchards that are demonstrating that apples, plums, cherries, strawberries,

and various fruits do well in this climate.

Forty thousand dollars are now invested in creameries in Cascade County. This industry has grown up in the past five years and four of the creameries now in operation were built last year. The creameries are as follows: The Belt Creamery Co., at Belt; the Cascade Creamery Co., at Cascade; the Eden Creamery Co., sixteen miles south of Great Falls; the Evans Co-operative Creamery Co., near Stockett; the Red Butte Creamery Co., twelve miles south of Great Falls; the Great Falls Creamery Co., Henningson Produce Co., and the Idlewild Creamery, of Great Falls. Last year the largest producer was the Eden creamery, which made 90,000 pounds of butter. The prices paid for butter fat in 1908 ranged from 25 to 35 cents per pound. There is no cheese factory in the county but there are localities in which such factory would pay during the summer months.

At Great Falls there is held annually the Northern Montana Fair of agricultural products, live stock and domestic industries. The grounds have exhibition halls, a mile track, and ample room for the display of exhibits. The Montana Poultry Association holds its annual mid-winter show at Great Falls where are shown birds from all parts of the State. The medals awarded to farmers of Cascade County for grains and grasses exhibited at the St. Louis World's Fair are said to number 69. Cascade County's exhibits at state and national fairs have always won prizes.

Cascade County is rich in building stone having both white and brown sandstone and limestone of light color. Many of the public buildings of Great Falls have been built of these materials. The court house and a number of churches are constructed of white sandstone. The building stone is easily quarried near the city and at many points in the county. Immense quantities of limestone are shipped to the smelters from the Albright quarries, which employ about 100 men. There are also immense beds of clay from which building brick is made. The great chimney at the Boston and Montana Smelter is built of brick made from clay found near the base of the stack. There are also beds of fire clay from which fire brick are made.

The Great Falls coal field is the greatest coal producing center in the Northwest. The annual output amounts to about one and one-quarter million tons. The coal is a good quality bituminous steam coal. There is no lignite found in this field. The chief mining towns are Belt, Sand Coulee, and Stockett. The Cottonwood Coal Co. at Stockett, mined last year nearly 600,000 tons, and is the largest producer. There are small mines on Hound Creek, Smith River, Upper Ming Coulee, Giffin's Coulee, Armington, and other places producing 1,000 tons or more. The coal area covers the entire southern half of the county, extends into the Judith Basin on the south-east, and is said to cover a territory of 1,000 square miles. About 1,200 miners are employed in these mines. This coal is the fuel of this section of the West and is used by the railroads, mines, smelters, and for domestic purposes in this and adjoining states. At one time one hundred ovens were burning coke at Belt, but they are not now in operation.

Cascade County has large deposits of brown and red hematite in the Little Belt Mountains, which are accessible from both the Neihart and Billings &

Northern lines of railroad. There is a sufficient quantity of iron ore in the county to supply the country for years with iron. This county has the natural resources to make it a great producer of iron. All the essentials for the production of pig-iron—ore, limestone and coal—are found close together.

Limestone is one of the important minerals of this county, so necessary is it in the reduction of ores. The great purity of this rock adds to its value for this purpose. Along the Belt and Smith Rivers from 200 to 500 feet above their beds, great masses of limestone lie exposed. Two trainloads per day are received at the Great Falls smelters. The manufacture of lime is an important industry.

The gypsum beds of Cascade County are very pure and among the most extensive in the West. They extend across the county at the base of the Little Belt Mountains, and are from 25 to 30 feet thick. The outcrop near Armington is most easily worked, and it is from this locality that the Mackey Wall Plaster Co. obtain the rock for their mill at Great Falls. This is a new, modern mill, was placed in operation in December, 1908, and ships a very fine grade of stucco, wall plaster, plaster of paris, etc. The manufacture of these goods is growing rapidly as the entire northwest can be supplied from this point.

In the Sand Coulee Valley.

While Montana is rich in water falls, Cascade County has been particularly favored in this respect. The falls of the Missouri River are among the most wonderful in the world. In a distance of seven and one-half miles this great river drops over a series of rapids and falls 535 feet. The mean low water flow of the river is about 3,500 second-feet, while the high water flow has reached 160,000 second-feet. The first development of the falls was made in 1891 when the Black Eagle dam, which has furnished the power for the operation of the Boston and Montana smelters, the flour mills, plaster mills, lighting system, street railway and the many smaller industries of the city was constructed.

About one year ago the land about the falls of the Missouri was purchased by the present owners of the Great Falls Water Power and Townsite Co. As soon as they acquired the property they immediately commenced to develop the power. The first dam at Rainbow and Crooked Falls is now complete, the second at the Big Falls is now well under way, and two other dams are planned. These dams will develop at mean low water 100,000 horse power. While some of the power is to be transmitted for use at other points the bulk of the power is to be used in large industrial plants to be established at or near Great Falls.

There are several other power plants in the county and many more water falls susceptible of development. The fall of Sun River is utilized in the irri-

Great Falls Has Fifteen Miles of Improved Avenues.

gation of the Campbell lands; a part of the fall of Belt Creek is utilized for crushing rock at the Albright quarries and some other water powers have been used in operating small saw mills, etc.

Great Falls, the county seat, is the chief city of northern Montana and its citizens expect it to become the leading city in the territory embraced within a circle drawn 150 miles, east, west, north and south of it. It has now a population of 22,000 and is growing rapidly.

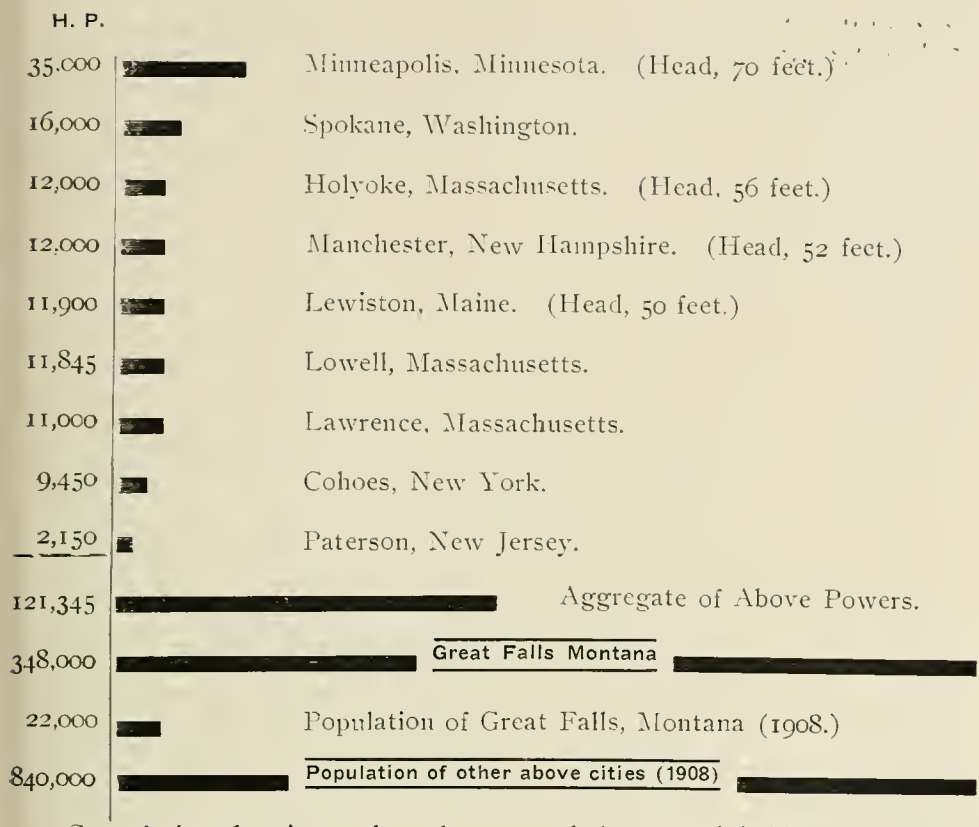
The greatest industry in Great Falls is the smelting of copper ores which are brought from Butte to the Boston and Montana smelter. This is the second largest smelter in the country and has the distinction of having the tallest chimney in the world. The smelter produces annually 100,000,000 pounds of refined copper, quantities of gold, silver and lead; employs from 1,200 to 1,600 men and to it comes daily train loads of ore, coal, coke, and limestone. The immense pay-roll is a great factor in the city's prosperity.

Other industries are the flour mills, plaster mills, the iron works and the breweries and there are many smaller ones. Ten wholesale houses do business in the city and numerous modern retail establishments with large stocks supply local needs. The United States local land office for the district is located here as is also the office of the Collector of Customs.

Great Falls is on the Burlington Route to the coast, and five lines of the Great Northern Railway radiate from it, making it a railroad center of great importance. There are two transcontinental lines which have lines surveyed to Great Falls and it is expected that they will be built in a very short time. One hundred miles of interurban electric railway have been located and the right of way is being secured. Construction work will commence this summer. This railway will place the Sun River Valley in close connection with the city.

As a place of residence Great Falls has many attractions. It is one of the most beautiful residence cities in the West, has electric, lights, electric railway, a thorough public school system, with a high school that fits its graduates for any of the colleges and universities, an elaborate system of parks, beautiful avenues with trees arching above the walks and every convenience of a modern city. There are more than 10,000 shade trees growing on the avenues of the city. The water works with thirty-one miles of water mains are owned by the city.

As soon as the new power plants are completed a number of large manufacturing plants are to be located. Cheap power and cheap sites are attracting manufacturing industries. Great Falls is the natural manufacturing center at which the crude minerals of the County and the State can be reduced to commercial form. It is a down-hill pull from every mine in the State to Great Falls. The grain of the country can be milled here in transit more cheaply on account of the waterpower than at any other point. Some idea of this wonderful water power will be gained from the following:



Cascade is a farming and stock center of about 500 inhabitants. It has two grain elevators and a flour mill, creamery, etc. There are many thousand acres of irrigated land about the town but grain is raised without irrigation. Large numbers of live stock are annually shipped and during the past few years fat beef fitted on alfalfa hay has brought the top price on the Chicago market.

Non-Irrigated Spring Wheat.

Belt, about twenty miles southeast of the county seat, is not only a farming center but a large producer of coal. It has a population of about 2,000, good business houses, bank, grain elevators, creamery, etc. Farther up the valley is the town of Monarch, which is a farming center and a summer resort. The scenery along the railroad between Belt and Monarch is extremely interesting and among the most beautiful in the West. Several hundred people from Great Falls and other cities annually camp along the trout streams

and in the picturesque valleys of the Little Belt Mountains.

Neihart is farther into the mountains and a silver lead mining camp. It is at the terminus of the Neihart branch of the Great Northern railroad. About sixteen miles east of Neihart is the Yogo district where are located the famous sapphire mines. Stockett and Sand Coulee are coal towns in a good agricultural section.

Cascade County is particularly rich in scenic wonders. The series of falls are among the most wonderful in America. The Giant Spring is one of the largest in the world and was of particular interest to Lewis and Clark on their memorable trip across the continent in 1805. There are a number of points in and about Great Falls of interest through the narrative of these intrepid explorers. A two hours ride from Great Falls by train will unfold scenes that cannot be surpassed for grandeur among the mountains of the West. There are many fine trout streams and both small and large game may be found.

CHOUTEAU COUNTY.

Chouteau County is the largest county in Montana and offers to the intending settler some of the best opportunities in the Treasure State. It has an area of 16,049 square miles which is greater than that of some of the original states. Fort Belknap Indian and Fort Assinniboine Military reservations occupy large tracts of desirable land. This county is increasing rapidly in population and wealth though the development of its great resources has scarcely begun.

The county is in the great plains region and the cold is sometimes severe though seldom of long duration. The rigor of the winter season is mitigated by the small percentage of humidity in the atmosphere and the prevalence of the chinook, or warm winds, from the Pacific Ocean. The mean temperature at Havre is not much below that of Wisconsin, Ohio or New York, and the number of clear, sunshiny days is greater than in either of those states.

The county is composed of valleys and undulating plains with the Bear Paw Mountains rising near the center and the Sweet Grass Hills in the northwest. The rivers are the Missouri, the Milk, the Marias, the Teton and their affluents.

The soil is generally good and yields abundant crops. The lands under cultivation are of two classes, irrigated and non-irrigated. The irrigated lands include the fertile bottoms and such a thing as a crop failure is unknown. There are many private ditches and in several cases water has been profitably pumped by gasoline engines from adjacent streams and small tracts irrigated by this means.

Results very important to the agricultural development of Chouteau County will follow the completion of the Milk River reclamation project, now in process of construction by the United States Government and which is treated of on another page.

But the greatest development of farming in this section will be the bench lands on which it is not feasible to bring water for irrigation. Nor is it necessary for it has been proven that the natural rainfall is sufficient to produce abundant crops where the land is properly broken, seeded and cultivated by the dry farming system, which conserves the moisture. The rainfall in this

region is light, being about 14 inches at Havre, but it comes when most needed as the following will show: January, 1.73 inches; February, 0.77 inches; March, 0.58 inches; April, 0.89 inches; May, 1.87 inches; June, 3.85 inches; July, 1.46 inches; August, 1.02 inches; September, 0.83 inches; October, 0.45 inches; November, 0.73 inches; December, 0.19 inches.

The Chouteau County experiment farm is located twenty-five miles north of Harlem and consists of land of a character which is representative of a very large tract of level land lying between the Missouri River and the Canadian border, much of which still remains subject to homestead entry. At the farm experiments have been made for the past three years to determine the crops best fitted for growth there, the amount of seed that gives best returns, and the methods that should be followed in cultivating the soil. The conclusion reached from these experiments is given on page 77 of Bulletin 74 of the Montana Agricultural Experiment Station as follows: "The yields indicate the possibility of many prosperous homes on these lands when they come to be handled under the proper system."

A Sheep Corral.

From letters of farmers living near Havre, the originals of which are on file with the secretary of the Havre Industrial Association, and may be seen there, the following are selected:

"For the past four years I have scientifically farmed about 40 acres each year, and have had yields of 50 bushels of oats, 25 bushels of wheat, and 20 bushels of rye per acre. I feel sure the Campbell system of scientific farming will prove a success here.

"A. D. SHIPLEY."

"I have grown oats with great success, employing what is known as the Campbell Scientific Farming System, and raised last year on a small tract of bench land, cultivated for the first time, 93 measured bushels of grain per acre.

"My potatoes did equally well in quantity and were, I think, easily the smoothest, largest and best potatoes in flavor and keeping qualities I have ever grown, and I have had extensive experience in farming in eastern Canada.

"W. D. MacFARLANE."

"I have been successful in all my farming undertakings on my ranch near Havre. I have grown wheat, oats, rye, barley, in addition to all kinds

of temperate zone vegetables, and have always had a splendid market for everything I had to sell.

"I believe the prices obtained for the products of the farm are greater here than in any other place in the United States. I receive for my eggs an average of 40 cents the year round in cash, and my butter brings me the same amount per pound.

"ADOLPH STOCKLIN."

E. J. Pepin obtained, in 1908, 225 bushels of alfalfa seed from 22 acres, which he sold in Havre at from $7.50 to $9 the bushel. Ten acres of oats yielded him 604 bushels and five acres of wheat 176 bushels. From five acres

Grown on the Bench Lands Without Irrigation.

of potatoes he dug 1,370 bushels of marketable potatoes. In 1907 he threshed 3,014 bushels of oats from 75 acres of land. Without expense, except the alfalfa hay they ate, he wintered one hundred hogs.

John Kincella whose farm is on Box Elder Creek, says: "I farmed in New York before coming to Montana, and in my opinion, based on many years experience, Montana is much the superior State of the two for farming purposes, because the winters are shorter and less rigorous, and the soil is new, rich, and apparently inexhaustible."

H. Earl Clack, who is farming on the bench lands two miles west of Havre, says: "My home was at Fort Worth, Texas, until 1899, when I came here. In 1904 I homesteaded 160 acres, some irrigated and some not. In 1907 I planted 10 acres in spring wheat, which yielded 30 bushels per acre; 20 acres in oats, which yielded 63 bushels per acre, 48 pounds to the bushel; and 7 1-2 acres in spring rye, unirrigated, which yielded 42 bushels per acre, 62 pounds to the bushel, making a total of 19,530 pounds to 7 1-2 acres. This sold for seed at $1.75 per hundred, making $741.75. I also cut 10 tons of wild hay.

"The year 1908 was not as good a season, but I did nearly as well. I have been offered $25 per acre, which I would not think of taking. As to

being satisfied. I would not now change my place with one of the best in Texas. The climate is invigorating and the cool nights refresh one so that it is possible to do as much work in one day as one can do in the south or east in two."

The area of the county is so great that differences in climate, soil and other conditions will be found in different localities. Near Fort Benton, in the southern part of the country is a vast area of public land open for settlement, the desirability of which for farming operations is indicated by the bounteous growth of native grasses. This region was the favorite grazing ground of buffalo, and since the settlement of the country hundreds of thousands of cattle, horses and sheep have grown fat on these extensive and productive pastures. In this section the Fort Benton Commercial Club is conducting a demonstration farm which prospective settlers are invited to visit.

Around Harlem are the productive lands which raise the blue-joint hay which is shipped in great quantities from that town. On the north are many thousand acres of land of a very productive character, which are open to free homestead entries. Near Harlem are many thousand acres of irrigated land.

In the neighborhood of Chinook are thousands of acres subject to homestead entry and many fine valley farms for sale to farmers who will make progressive citizens.

More than 1,500,000 acres of free lands are directly tributary to Havre, and subject to homestead entry. This land is of a flat, level character, largely, and it consists mostly of bench lands, which, in many cases, are greater producers than the valley lands, and the soil is deeper, running from 20 to 30 feet.

Cleveland, situated in the eastern part of the Bear Paw Mountains, in one of the coziest corners in the county, is surrounded by fertile land, now selling at $22 per acre, which a few years ago was unbroken prairie. There are many acres of good land, it is said, to be had in the vicinity and water is found at a depth of 18 to 25 feet. Coal has been found and this section seems to present many advantages. Everywhere in this vast territory are lands waiting for an occupant to come and take them. And the homestead, be it remembered, embraces 320 acres instead of the usual 160. North of the railroad is a strip of agricultural land estimated to be 175 miles long and 35 miles wide, which does not contain more than 200 settlers. This land is practically all open to settlement.

There is not space here to refer to the great yields of the various crops on the irrigated lands but as such lands are especially adapted for the cultivation of the sugar beet the probability that the raising of beets will soon become one of the most profitable industries in the Milk River Valley will be here mentioned. The Amalgamated Sugar Company has leased from the Government 10,000 acres of land in the Fort Belknap Reservation on which to grow sugar beets. This company will co-operate with the farmers and embark in sugar beet culture on a large scale. Contracts have been signed for the erection this year of a beet sugar factory near Harlem, with an initial capacity of 600 tons, which will cost about $1,000,000, and additional thousands will be spent for

loading stations. This factory will provide a market for the beets raised in the Milk River Valley.

Grain elevators will be needed at many stations.

A creamery is in operation at Chinook, one is needed at Havre and another at Harlem.

The minerals of the county are gold and coal. The output of the gold mines at Zortman in the Little Rockies is large and constant, and Chouteau County frequently leads the counties of Montana in the amount of gold produced. Coal is mined at Havre and Big Sandy and exists at other places.

Fort Benton, the county seat, is at the head of navigation on the Missouri River, is an old, rich and historic town, and is an important trading

A Haying Scene.

point. A steamboat has recently been built at Fort Benton and will ply between that place and the mouth of Milk River, rendering service to residents of that section which is rapidly settling up and is remote from the railroad.

The Great Northern Railway traverses the county from east to west and the Montana Central division runs southwest from Havre. Dodson is an enterprising village to which are tributary thousands of acres of land. It is of especial interest on account of the construction of the Dodson unit of the Milk River irrigation project. Coburg is a station, near which homestead land may be found. Savoy is noted for the production of hay. Harlem is an enterprising and growing town surrounded by a fine country and is the supply point for a large territory. The indications are that its population and business will increase very rapidly in the next few years. Chinook has a population of about 1,000, and is steadily growing. It has good school facilities and is in the heart of a fertile region. It is situated on a high elevation, commanding a beautiful view. There are large stores and fine residences. Great quantities of wool are shipped from Chinook. Yantic is in a section, as yet, little developed. Chester, in the western part of the county, is a prosperous community in a section of level table lands. Thousands of acres of the

choicest level lands in Chouteau County are tributary to this point and it is a good one for the homeseeker to visit. Southwest of Havre on the Montana Central division are Box Elder, Big Sandy and other supply points for adjacent territory.

Havre, the junction point of the main line of the Great Northern and the Montana Central division, which runs to Great Falls, Helena and Butte, is the most populous city. It is a very important railroad point the shops there being the third largest of any owned by the Great Northern, having a capacity for 800 employees, and a monthly pay roll of $60,000. Near by is the Fort Assiniboine military reservation, the largest in the United States. Havre, in the center of the vast territory forming Chouteau County, claims a population of 2,500, has fine schools, five churches, has city water works and sewer system, banks, large business houses, newspaper, electric lights, fire department, public library, and is a progressive, growing town. A large coal mine is in operation near the town and there is an immense bed of cement rock awaiting development. Havre affords a local market for many products of the farm.

The Milk River Information Bureau has done much to develop the resources of this section of Montana. Its object is to insure the prospective settler a fair deal without cost and its membership comprises the commercial clubs of Glasgow, Vandalia, Hinsdale, Saco and Malta in Valley County, and Wagner, Dodson, Harlem, Chinook, Havre and Chester in Chouteau County. The officers are: President, Leo. B. Coleman, Glasgow; secretary, W. E. French, Harlem; treasurer L. V. Bogy, Chinook.

With its millions of acres of good farming lands, Chouteau County has a population not in excess of 12,000 people. There is room and free land for thousands and tens of thousands and those seeking a home are most heartily invited to visit this empire and investigate the opportunities it offers to them.

CUSTER COUNTY.

Custer County is a vast empire in itself, having an area of 13,107 square miles. It lies in the southeastern corner of Montana adjoining North Dakota, South Dakota and Wyoming. The Yellowstone River traverses it from west to east and has many affluents coming from the south, principal of which are Tongue and Powder Rivers, which rise in Wyoming. The former flows fifty miles through Custer County before entering the Yellowstone and the latter about 150 miles. The Little Missouri crosses the southeastern corner, and the chief rivers all have important tributaries. Along all these streams are valleys, which vary from half a mile to six or seven miles in width. Custer County is roomy, that is the idea one must bear in mind when thinking of it, or of other counties vast in size, such as Dawson, Valley, Chouteau and Teton, only sketches of which in rough outline can be given in this publication.

Most of the valley lands are susceptible to irrigation, but, as a rule, the bench lands are too high to permit the bringing of water to them. A rough estimate states that there are 2,750,000 acres of valley lands of which it is possible to irrigate the greater part; 2,750,000 acres of bench lands, arable but not irrigable, and about 4,000,000 acres chiefly adapted for grazing. The records of the Land Office show there are fully 6,000,000 acres of public land in the

county the balance being owned by the Northern Pacific Railway and by individuals and companies. Probably there remain 2,000,000 acres of Government land, which are available and suitable for farming. While numbers of homestead claims have been recently filed they have made little impression upon the vast area of vacant land.

The climate compares favorably with that of Iowa, Illinois, Michigan and New York; the altitude is approximately 2,300 feet, insuring cool nights; there are comparatively few severe storms; the air is dry and one does not feel the cold of winter or the heat of summer as in more humid regions; the

The First Season on a Homestead.

number of clear days annually averages 175, partly cloudy 125, cloudy 65, rainy 80. The mean temperature is 44 as compared 44 for Wisconsin, 49 for New York and 49 for Ohio. The normal rainfall is approximately fifteen inches, more than half of which occurs during the crop growing season and it has proven sufficient for all crops in this soil when properly cultivated.

In the valleys good water is obtained at a depth of from 12 to 25 feet and on the bench lands at depths ranging from 25 to 200 feet. There are some artesian wells.

Although very sparsely settled, Custer County has an excellent system of district schools, there being thirty-five school districts, a county high school at Miles City and graded schools there and at Terry, Ismay and other places. Nearly every religious denomination is represented by organizations. The chief secret and fraternal organizations have lodges in the various towns.

Along the streams is a growth of cottonwood and ash and on the ridges and hills cedar and pine are found. Underlying practically the entire county, cropping out of the bluffs along all the streams and many of the hillsides, are veins of lignite coal. This is so abundant that it is only within recent

years that any systematic attempt at mining has been made, the custom having been for one who wished a supply of coal to go to a convenient ledge and procure it at no cost except his own labor.

The Northern Pacific Railway follows the Yellowstone River through the county; the Chicago, Milwaukee & Puget Sound Railroad cuts across the northeastern corner to the Yellowstone River, which it crosses near Terry and follows up the river to the western boundary of the county; and there is an expectation that other railroads will soon penetrate this territory.

Up to the last year or two stock raising has been almost the only industry of the county. During the last year or two a number of new comers have made settlements. Many of them raised very successful crops in small individual acreages. This season (1909) many settlers are coming and several thousand acres of various crops have been put in and are in a very promising condition.

The principal inducements now offered by this county are the abundance of free Government lands and the low price of the railroad lands. Land values are rapidly advancing on account of the incoming settlement, but still range from $2.50 to $20 per acre from wild lands up to improved ranches. Good homesteads can still be secured within a few miles of towns and railroads, and several hundred thousand acres of railroad lands are now open for purchase by settlers.

There are two or three irrigation projects now in operation in the county, among them the Tongue River near miles City and the Fallon-Glendive Co., near Fallon. There is much talk of other projects covering some of the fertile lands of the Yellowstone Valley and these will doubtless be carried out in the near future.

It is estimated that 61,000 acres of land situated in the valleys are irrigated lands and some of these lands can be bought at prices low in comparison with prices irrigated lands sell for in other states. Irrigated lands are particularly valuable for raising sugar beets and alfalfa.

Nearly every grain, vegetable and fruit known in the northern part of the United States grows in Custer County. Oats, wheat, barley, rye, corn, cabbages, rutabagas, pumpkins, squash, egg-plant, cauliflower, tomatoes, cucumbers, peppers, radishes, peas, beans, celery asparagus make a partial list. Watermelons have a flavor and crispness that are unequalled and cantaloupes grow to perfection. Strawberries of fine flavor, color and size grow. Peaches, pears, apples, crab-apples, plums, gooseberries, currants and raspberries do well. There is a home market for fruit and vegetables and unsupplied demand for dairy products and for eggs and chickens. In June, 1907, one firm in Miles City shipped in from other states 2,206 pounds of butter besides buying for cash all the home made product offered; 1,904 pounds of cheese, five carloads of flour and 70 cases of eggs. The local demand for alfalfa also exceeds the supply.

Alfalfa is king of the forage crops, the staple crop of the Yellowstone Valley and a great money maker for the raiser of it. Horses, cattle, hogs and sheep thrive on it. With three cuttings a year it yields from four to five tons an acre and sells from $8 to $12 a ton. Oats grow to perfection, with a large plump berry, yielding from 50 to 100 bushels an acre. Barley does

well. About 50 bushels of club wheat to the acre is an average yield.

No county in the United States, perhaps, is a greater stock growing county than Custer, or has shipped more horses, cattle, sheep and wool. Miles City is the greatest primary horse market in the Northwest and its monthly horse auctions during the season attract hundreds of buyers from all parts of the country. The stock yards where the sales take place, cover fifty acres of ground. The Montana horses sold in a year number 25,000, and they are of full size, strong and hardy, having been bred from blooded stallions. As the country fills up there will be fewer large stock companies using the public domain as a free range, but the aggregate amount of stock in the county is likely to increase rather than to diminish. The transformation of Custer County from a stock to a farming county was slow to begin, but is proceeding, since it has started, with astonishing rapidity. As long ago as October 10, 1879, General Nelson A. Miles, wrote from Fort Keogh, at Miles City, a letter about the agricultural resources of the county. "The companies in my command," he says in part, "have served in almost every section from Florida to Utah, and from the Lakes to New Mexico, and have never been more successful with their gardens. These samples of corn, wheat, and oats prove beyond question that this is not only a country rich in mineral and pastoral wealth, but that every kind of food required for man and beast can be raised in great abundance. Such luxuries as melons, cantaloupes, tomatoes, strawberries, plums, raspberries and cherries can be raised successfully—the last three grow wild. From all indications the Yellowstone Valley as well as the adjacent country, is destined very soon to be occupied by large and prosperous settlements." The predicted occupation of the land by cultivators of the soil was postponed by the Indian wars, by the rise of the stock industry, by lack of knowledge of the resources of the country, the existence of unoccupied public lands in older states, and by the absence of transportation facilities. Present conditions make for the rapid settlement of this vast territory and General Miles' prediction is beginning to be realized in ample measure.

Thirty-Five Acres Per Day in the "Heart of the Yellowstone."

Unirrigated Dent Corn.

Miles City, the county seat, is a busy, progressive, rapidly growing town of 5,000 population, located at the junction of Tongue and Yellowstone Rivers, has a number of manufacturing concerns, wholesale and retail stores; is the distributing point for a large territory, and ships more horses, cattle, sheep and wool than perhaps any other town of its size in the United States.

Two railroads, the Northern Pacific and the Chicago Milwaukee & Puget Sound, enter the city. The latter road has made Miles City a division point, has built large shops and disburses monthly large sums in payments to

A Young Orchard Near Miles City.

employees. The final location has been made for the Montana, Wyoming & Southern Railroad, which will connect Miles City with Sheridan, Wyoming, and open up a remarkable rich section of country. Construction work, it is expected, will soon be begun.

There are the very best school and church facilities. The presence of telephones, electric lights, waterworks, newspapers, banks, fine public buildings, business blocks and residences are evidences that Miles City is an up-to-date place. It is the seat of the Land Office, which is a busy place these days. Few towns in the country are more progressive than Miles City or are growing more rapidly. It is one of the best business points in the State.

Terry, located fifty miles east of the county seat, and having a population of 500, is the next town in size. It is the junction point of the two great transcontinental railroad lines, is surrounded by a fine agricultural region, is an important trading point, with stores, newspapers, bank, hotels, lumber yards, churches, opera house and fine schools. It is a growing town in a growing country.

Ismay is a new town on the Milwaukee, which has grown in its first year to be an important place with large store, bank, brick school house and modern residences and business establishments. It is located in O'Fallon Creek Valley.

Baker, another new town on the same road, near the Dakota line is in a country rapidly filling up with settlers. It is an important shipping point and has a number of business establishments.

Ekalaka, located forty-two miles southeast of Baker, is an old settlement with a population of about 400. It is surrounded by good agricultural and grazing lands, has churches, school and business establishments of various kinds. Fallon, Mildred, Knowlton and Stacey are smaller places.

Custer County is developing with great rapidity, has a great variety of undeveloped resources and a people noted for their energy and progressiveness.

DAWSON COUNTY.

It is a most welcome transition for the traveller when the train bearing him westward rushes out of the North Dakota "bad lands" and emerges into the beautiful, broad expanse of the Yellowstone Valley. Of course, when he comes to know the country he will learn that these so called "bad lands" are valuable for pasture, are not in the least typical of the great soil wealth or surface conditions of North Dakota and concern Montana in very slight degree because so small a part of the area of the State consists of lands of that description. It is just when the Northern Pacific train reaches Glendive that the far famed Yellowstone Valley bursts upon the view of the traveller and it presents to him a most inviting prospect. Its beauties captivated the visions of the trail blazers of long ago, but its settlement was postponed for many years because it was in the heart of the Sioux country, the scene of many fierce battles with that fierce tribe of Indians, and did not become safe from Indian depredations until the construction of the railroad in 1882-3. Previous to this time, however, the beginnings of agriculture had been made in the Lower Yellowstone Valley in the neighborhood of military posts and by venturesome settlers at other places, and the productiveness of the soil fully demonstrated. But the tide of agricultural settlers did not flow into the valley, other lands farther east—not more fertile but better advertised and nearer the older states and, therefore, easier reached—attracting them. The country was mainly devoted to raising horses, cattle and sheep for which its wealth in native grasses especially fitted it. Meanwhile farms increased slowly in numbers, the choice locations being first taken and the towns grew in population, but the stock industry was predominant.

The pressure of population in long settled sections of the country and the filling up of the states east and south of Montana is causing a mighty host of homeseekers to turn their eyes to the Treasure State in search of opportuniites for bettering their condition in life. Dawson county, the gateway to Montana, offers to the industrious settler the opportunity to acquire an independence, even a fortune, by his own well directed efforts.

Hauling Wool to Market.

It is an empire in size embracing over 13,000 square miles, with a population of only 10,000. Within its boundaries is room for both the farming and live stock industry. The open range is being settled upon by homesteaders, big ranches are being sub-divided and sold to farmers, and the live stock industry is gradually being forced back to the less desirable lands. The day of the cultivator of the soil has arrived.

The soil of the greater part of Dawson County is a rich loam, underlaid with a clay sub-soil, varied by stretches of sandy and gravelly soil. Climatic conditions are extremely favorable. The rainfall is discussed in another paragraph. The presence of inexhaustible beds of lignite coal solves the

Hay Makers.

question of fuel in a most satisfactory manner. Scores of farmers dig all the coal they need without let or hindrance.

The lands in Dawson County which invite the farmer fall into two classes: irrigated lands and non-irrigated lands. The lands under irrigation are (1) those in private ownership, some of which is for sale at moderate prices, and (2) lands within the Government irrigation projects. The Lower Yellowstone reclamation project has for its purpose the reclamation of about 90,000 acres of land by means of water taken from the Yellowstone River below Glendive. The project is referred to in another part of this publication, where information is given about its present condition and the prices at which these lands will be sold.

The Northern Pacific Railway Co. owns many acres of land in the county. The cultivation of non-irrigated lands is making great progress in Dawson County. Men observed that nature, without assistance, had clothed the hills with grasses and flowers and concluded that here existed the possibilities of successful cultivation of the soil for farm crops. And just when this conviction was gaining ground the science called Dry Land Farming—for which "Conservation Farming" might be a more appropriate name—stepped in to make that hoped for success a practical and tangible reality. The general question is discussed in another part of this publication in relation to its bearing on the development of the agricultural resources of Montana; but it may be

stated that dry land farming has passed beyond the experimental stage in Dawson County. The success of the dry farming system of cultivation seems to have been demonstrated to the satisfaction of the average man on the State Experimental Farm, 25 miles north of Glendive which consists of land that is representative of an enormous acreage in the eastern part of the State. "With most of the crops, and especially with the fall wheat," says the report of the Montana Agricultural Experiment Station, "the yields are such as to indicate highly profitable farming possibilities for the community." The Experiment Station's average of results for all the years was: Fall wheat, (Turkey Red) 36.63 bushels per acre: fall rye 32.50: California barley, 22.85; oats, 51 bushels; potatoes, 147.56 bushels, and for 1908 yields of Turkey Red fall wheat are reported as follows: Bushels per acre, 39.53, 38.67, 40.80, 40.97 and 44.03. (Bulletin 74, Montana Agricultural Experiment Station, Pages 71 and 78).

Not Many of These in Montana Now.

There are residents of this county who expect to see its wide area filled with successful farms, producing chiefly wheat, but other crops also, and eastern Montana cultivated by the Campbell system of farming dry land, developed into the greatest wheat producing region in the world.

The average rainfall of this section as shown by the Government's records extending over 19 years is 15.42 inches. Of this total 8.53 inches, or more than one-half, falls during the months of April, May and June, when it is most needed for developing plant life. The least rainfall is in the harvest month. By months the record of precipitation in inches is: January, 0.78; February, 0.65; March, 1.25; April, 1.11; May, 2.32; June, 3.44; July, 1.66; August, 0.97; September, 1.10; October, 0.77; November, 0.65, and December, 0.70. The distribution of the annual precipitation creates conditions almost ideal for the growing of winter wheat.

A great many homeseekers have come into this county in the past few years and have built for themselves happy homes, and new and thriving towns have sprung into existence.

Glendive, the county seat, is a flourishing little city, which has almost doubled its population in the past five years and the claim is put forward that it has just begun to grow. It is the supply point of a large territory, which has been devoted to stock raising, but which will become the homes of thousands of farmers. A well equipped city of 3,500, with electric lights, telephones, municipal water works, fire department, churches, newspapers, modern school systems, it has to-day all the institutions of an up-to-date town. A county high school to cost $35,000, a Methodist church to cost $25,000, a

handsome business block and several residences are being built. These will supplement existing fine buildings and residences.

A plant for the manufacture of re-inforced concrete piers and slabs for bridge and other work over the Northern Pacific system for several hundred miles east and west of Glendive is being established there. Immense water power could be procured from the Yellowstone River, flowing past the town. Beds of lignite coal near the town could be utilized in establishing a gas plant.

Glendive's first importance came as a division point on the Northern Pacific Railway. The monthly pay-roll from this source averages about $40,000, and the yards and shops have recently been enlarged. Work has been begun on the new water grade line of the Northern Pacific from Glendive to Mandan, and there is talk of its extension from the former place to Omaha. And there are other possibilities in the railroad line particularly of the Chicago, Milwaukee & Puget Sound building a branch from its line which is only 30 miles west of Glendive. An air of prosperity and progress and confidence permeates everything in Glendive.

Ewes With Their Young.

Wibaux, on Beaver Creek, with a population of 600 in a fine agricultural region and an important shipping point, with schools and churches, and business establishments and with many of the modern day facilities of a progressive town, is second in importance. There are openings, it is said, in Wibaux for a doctor, a general merchandise establishment, a hardware store, a feed store, three grain elevators, a flour mill, a brick yard, (good clay being available), a harness shop and a butcher shop.

The new Glendive-Mandan road will traverse the lower Yellowstone section and the towns of Burns, Tokna, Newlon, Sidney, Rilgelawn and Fairview, bid fair to experience rapid growth and development. In fact the valley offers opportunities in many places for business investment.

The people of Dawson County and Glendive believe that there are unfolding before them prospects and probabilities which should give confidence and optimism to any man who decides to cast his lot amongst them to woo fame and fortune just within "The Golden Gateway to the Famous Treasure State."

DEER LODGE COUNTY.

Deer Lodge is the smallest county in the State and yet, one of the richest. This fact is due to the location at Anaconda, the county seat, of the Washoe smelter, which is the largest and most modern copper reducing plant in the world, treating 25 per cent of the copper produced in the United States. The ores are brought from the mines at Butte, 28 miles distant, directly to the smelter by the Butte, Anaconda & Pacific Railway, which was constructed for that purpose. The smelter employs 2,000 men, has a pay-roll of $215,000 a month, and was erected at a cost of over $9,000,000.

The human mind can hardly grasp the bigness of the plant, even with a personal inspection. This is what it takes to feed its great maw every 24 hours: Amount of ore treated in 24 hours, 10,000 tons; lime rock from adjacent quarries, 2,300 tons; coke used, 650 tons; coal for reverbatory use, 500 tons; coal for power use, 500 tons; water, per minute, 35,000 gallons.

Wheat Which Counts.

Anaconda, the county seat, is a city with 12,000 inhabitants, with fine residences, business blocks and public buildings, and is a delightful place of residence. Building and fire brick are manufactured. Near Anaconda the State of Montana maintains a fish hatchery.

In the mountains are both placer and quartz gold mines. The Allen Gold Mining Co. has purchased from the Government 60,000,000 feet of timber in the Hell Gate Forest Reserve; and at an expense of $50,000 has built a flume 16 miles from the head of American Gulch to a point on the Butte, Anaconda & Pacific Ry. This flume transports the products of the forest to the railroad, which carries most of it to the mines in Butte. From 125 to 150 men have been employed in the operations of this company.

It is the intention of the Government Forestry Service to establish on Mill Creek during the present year a pickling plant to demonstrate methods for preserving the life of timber.

Live stock is not great in numbers but includes some very fine and high-priced animals which have taken prizes at many fairs.

The county grows quantities of all kinds of hay, wheat, oats and all kinds of garden truck.

From letters received from cultivators of the soil which are in the possession of the county commissioners, showing yields of their crops, the following are taken as samples:

A. M. Day—Warm Springs: "I have been a rancher in Deer Lodge County for 14 years, and have 65 acres under plow at the present time. I harvested last year 120 tons of alfalfa, timothy and clover. This averaged me $12 a ton. Alfalfa mixed with timothy averages over two tons to the acre, with a second crop of alfalfa of 3-4 tons to the acre, which I used for dairy feed and for calves. Timothy and clover brought in Anaconda $16 to $18 a ton. I have found young green onions a very profitable crop. Two acres planted for the local market brought $400 an acre, and I could not raise enough to meet the demand. In addition to my outside crops, I have 24,000 square feet under glass, which I devote entirely to lettuce and radishes, which range in price from 15 to 25 cents per pound, according to season. We have the best market in the world for every pound of ranch produce that can be raised."

Oats Galore.

Thos. A. Parker—Warm Springs: "I have been in Montana 40 years, and on my present ranch seven years. I have 307 acres under cultivation entirely in hay. This has averaged me $16 a ton in the Anaconda market, loose, without the expense of baling, and with no freight to pay. I can sell every pound of hay I can raise without going outside of the county. My crops are timothy and clover, and they grow to perfection in this part of the valley. In 1907 and 1908 I received first prize at the Montana State Fair and second prize at our county fair in 1907. With my long experience in the State I personally consider this one of the most highly favored sections of the West."

Charles Bowman: "I have lived in Montana 18 years and on my present ranch 7 years. When I bought my place I borrowed $3,500 and had to pay 8 and 10 per cent for the money. I have paid off all this money and have added 160 acres; besides, I am now completing a six-room house which will cost about $2,000 when finished. I have 90 acres in grain—77 in oats, which averages 40 bushels; 13 in wheat, which averages 30 bushels to the acre; 5 acres in potatoes, which yield 100 sacks to the acre. I cut 250 tons of hay which averaged 3 tons to the acre. I have 170 head of cattle and 12 work horses. Most of my hay is sold in the stack on the ranch. There is a good market for everything that can be produced

in Deer Lodge County, and I haven't any reason to complain of my experience as a rancher in this county."

N. A. Liffering: "I have been a rancher in Deer Lodge County for 10 years, and have 520 acres. I have 55 acres in alfalfa, which yields 2 1-2 tons to the acre; 10 acres in wheat, which averages 30 bushels to the acre; 6 1-2 acres in potatoes, which produce 100 sacks to the acre. Besides the above I cut 30 tons of wild hay every year. I have 7 head of cattle, 24 head of horses and 150 chickens. During the month of April I sold $32 in eggs, in addition to what we used on our own table.

Mitchell & Mussigbrod at Warm Springs have a ranch of 5,000 acres, a large part of which is under cultivation. They have one of the best Holstein dairy herds in the State and have won prizes at county and state fairs, for cattle, hogs, root crops and all farm products. They raised crops as follows:

CROP	ACRES	PRODUCT
Hay	400	800 tons
Alfalfa, first cutting	60	150 tons
Alfalfa, second cutting	60	90 tons
Oats	30	1500 bushels
Wheat, (Macaroni)	15	310 bushels
Beets, (Manglewurtzel)	3	60 tons
Beets, (Sugar)	1	10 tons
Carrots	½	10,000 lbs.
Cabbage	5	750,000 lbs.

In hot beds large quantities of cabbage plants, cucumbers and lettuce were raised. Peas, lettuce, onions, kohlrabi, parsley, kale, turnips, cauliflower, table beets, radishes and rutabagas were grown in large quantities.

A Valley Road.

The climate and soil conditions of Deer Lodge county make it a section peculiarly adapted for raising hogs. One acre of either good alfalfa or clover, along with a small amount of grain, will pasture about 25 fifty-pound shoats and the grain crops and the peas added to the alfalfa make an ideal ration for raising and fattening pork.

In the dairy business and poultry raising are good openings.

Fruit raising has not been carried on extensively but can be profitably

pursued as is shown by the experience of Alfred Perkins, who has four acres of apple trees and has been very successful with gooseberries and currants. Apples from Mr. Perkins' ranch won a prize at the National Apple Show at Spokane in 1907.

The market for all products of the soil raised in Deer Lodge County is right at hand, as the pay-rolls of the mines, mills and smelters of Butte, Anaconda and tributary country within a radius of 100 miles is more than $2,000,000, Butte being a mining town of 70,000 and Anaconda a smelting town of 12,000 population.

A Deer Lodge County Timber Scene.

Improved lands can be bought from $12 to $150 per acre, according to location, and unimproved lands for range and dry farming at from $5 to $8 an acre.

"Montana Agricultural College and Experiment Station.
"Bozeman, Mont., April 27, 1909."

"Board of County Commissioners,
"Anaconda, Mont.

"Dear Sirs:—

"Replying to your letter of April 23, will say: I have no data in regard to the yield per acre of crops in Deer Lodge County. I have, however, noted that common farm crops, vegetables and small fruits are productive and profitable crops to grow. I have also noted at the state and county fairs the quality of the vegetables, grains and grasses, and feel safe in stating that the quality

is as good as can be grown in any section of the Northwest. It seems to me that vegetable growing, and small fruit growing, such as strawberries, raspberries, currants and gooseberries, would be extremely profitable in the Deer Lodge Valley because of the fact that the markets of Butte and Anaconda are so near at hand. I am quite sure that profitable crops of vegetables and small fruits can be grown in the Deer Lodge Valley when given proper care.

Very truly yours,

"R. W. FISHER, Department of Horticulture."

A pamphlet issued by the County Commissioners says: "To the home-seeker, with little capital and plenty of energy, Deer Lodge County offers unexcelled if not unequalled opportunities. Ten acres well handled will return a good living and will represent only a fractional part of the investment necessary to get land enough elsewhere, not so favored in regard to markets, on which to make the same good living. There is still a lot of good land to be had in the valley, and with intelligent tilling it will yield more for the honest effort put forth than the same amount of land anywhere else in Montana. With but from forty to eighty acres of good land one who grows a variety of crops and raises hogs, chickens, a few cattle, etc., can handle his farm on a small investment and with profit. He can gradually increase the number of his cows until he has the number that he can most profitably keep. The number of fowl can also be easily increased or decreased to suit the conditions. Hogs of some good standard breed should be kept. He should be able to turn off a few head of horses each year. An orchard and small fruit should be started at any early date. The product of such a farm will bring high prices on the market. The demand for small fruit, butter and eggs, beef, pork, etc., that is fattened and marketed at the proper time will make fancy prices."

FERGUS COUNTY.

Fergus County is located in the very center of the State of Montana and has an area of 6,762 miles or more than 4,300,000 acres. Of this area about 1,000,000 acres, or one-fourth, is mountainous or unfit for cultivation; about the same amount may be classified as grazing land, and the remainder, approximating 2,000,000 acres, is agricultural land adapted to the raising of wheat, oats, rye, barley, flax, speltz and all the smaller grains, timothy, alfalfa, clover and all the grasses, and every growth of vegetable grown in the Northwest.

The land of Fergus County is a gently rolling prairie, relieved at intervals in the interior by small mountain ranges, which form the basis of its numerous water sheds. These mountain ranges, crowned as they are by bountiful growths of timber, are the natural reservoirs of the country, conserving the snowfall of winter months. These in turn supply the waters of the numerous rivers and streams that drain this section.

Fergus County has for many years led all other counties of the State in the value of gold production, the output at Kendall and Gilt Edge averaging about $65,000 per month, or a little more than three-quarters of a million dollars annually. Near Utica is the greatest sapphire bearing ledge in the world, producing a gem rivaling the oriental stone in color and brilliancy. In the mountains at the head of Judith River and Wolf Creek have been found ores of gold, silver, copper and iron. Little work has been done in these

claims but the coming of the railroad has given an impetus to prospecting. One of the largest undisturbed coal areas in the world is in Fergus County. An excellent grade of semi-bituminous coal is produced near Lewistown; and near Windham, where extensive prospecting has been done, a strong company has acquired large tracts of land and has partially opened up what may become the largest coal mine in the State.

Since its earliest settlement Fergus County has been regarded as an ideal stock country. The rapid development of its diversified agricultural resources has closed large sections of its ranges to stock, but the industry is still a strong feature in the prosperity of the county, and the largest profits known in the history of the business here have resulted in recent years. The county still leads the State in the quality and amount of wool production.

It is perhaps safe to say that there are 1,000,000 acres available for homestead entry in the county, these lands lying chiefly in the northern, eastern half and southern part. Of course, there is considerable other land which is unoccupied, but is fit only for grazing. The soils of these lands are very similar throughout the county, being a rich, dark loam with a clay sub-soil, mixed with numberless fragments of limestone and phosphate, most beneficial elements in producing crops of first quality wheat.

The western half of Fergus county is so enclosed by small mountain systems as to form a great natural basin. This remarkably fertile country, known as the Judith Basin, is drained by the Judith River and tributary streams and extends about 50 miles east and west and 60 miles north and south, comprising an area of approximately 2,000,000 acres. The Great Northern and the Chicago, Milwaukee & Puget Sound railways traverse the heart of this section.

The land is a rolling prairie and a larger proportion is fit for profitable cultivation than any other prairie section of like extent in the State. This region, so bountifully blest by nature, was the finest range country in the entire west in the days of the open range and is now fast developing into one of the best grain producing sections in the country. The change from a stock to a farming country was the result of the coming of railroads which made possible the marketing of surplus crops.

Seven years ago a few practical farmers entered the Judith Basin and settled upon the Rock Creek Bench near the present site of Moore. The result obtained from the crops grown upon the Rock Creek Bench lands soon caused a rush for possession of similar lands and every bench in the Judith Basin is now dotted by homesteaders' cabins.

The success of the Rock Creek Bench farmers gave a great impulse to the development of the agricultural resources of the county, one effect of

Forty Bushels Per Acre of Winter Wheat Raised on "Dry Land."

Where the "Hired Man" Can Get His Money Every Night If He Wants It.

which was the establishment of an experimental farm. The Judith Agricultural Farm was established in 1907, and is located 14 miles northwest of Moore and 24 miles west of Lewistown, and comprises lands typical of the vast areas embraced in the Judith Basin. It is maintained at the joint expense of the U. S. Department of Agriculture and the State of Montana, is conducted by experts in this line of investigation and has proven an important factor in demonstrating the capabilities of the soil and in showing the best methods of cultivation to secure the most profitable returns.

At the Montana State Fair, the Fergus County grain exhibit was the winner of the first prizes for wheat and several other grains. For grains in the sheaf, Fergus County was awarded first prize for soft winter wheat and first and second prizes for hard spring wheat. For threshed grains, first prize for hard spring wheat, and first and second prizes for hard winter wheat. The county was also awarded first prize for blue joint grass, flax seed, white flint corn and any variety of corn.

Reports from 100 ranches located in every farming district in Fergus County show the following splendid results for the crop season of 1907: Eighty-three of these ranches report a grand total yield of wheat of 239,059 bushels, grown on 6,520 acres, an average of 36.66 bushels per acre. Ninety-one ranches report a grand total yield of 249,980 bushels of oats, grown on 4,425 acres, an average of 56.40 bushels per acre. Seventeen ranches report a small acreage each of barley, 136 acres yielding 5,973 bushels, an average of 43.91 bushels per acre.

Wheat produced on these lands frequently weighs as much as 66 pounds, and grades as No. 1 hard winter. Turkey Red and Crail Fife wheat have proven the best winter crops grown thus far and Scotch Fife is probably the best spring wheat crop. Oats weighing as high as 47 pounds per bushel have been threshed but the average weight is about 40 pounds. Silver Mine and White Welcome oats are planted mostly and give the best returns. The barley crop is one of the best grown in this region. The grain is as good as any grown on earth, the yield is magnificent and as a crop it is sure every year. Bald barley, or Goose wheat, is another crop that has proven profitable. Durum, or Macaroni wheat, has been planted in several localities for the past three years; as a crop it is sure. Flax is almost a native growth. It gives excellent returns each year, but thus far attempts have not been made to grow it extensively. The wild grass makes excellent feed for stock, every pound of hay demanding a good price. Timothy produces from three to five tons per acre. Blue joint yields from two to four tons per acre. Alfalfa produces two and three crops a season and from two to four tons at each cutting.

The potato crop is another profitable one, the yield being from 150 to 600 bushels per acre of a quality not excelled anywhere. More than a million pounds of Fergus County potatoes were shipped to St. Louis during the big fair.

A number of experiments in the growing of sugar beets have been made and the results were most satisfactory. Analyses of samples show a much higher per cent of saccharine than is necessary to insure their commercial value.

Rutabagas, turnips, carrots, parsnips, beets, onions, cabbage, and all the smaller garden stuffs give bountiful returns. Strawberries and all the smaller fruits, apples, crab apples, and plums have been grown successfully in many localities.

The Judith Basin can raise such big crops because of the advatageous climatic conditions. The warm chinook winds temper the winters which are not as severe as in other states in the same latitude. The summers are warm though the nights are cool. The Judith Basin has sufficient rainfall to insure good crops, the average precipitation being from 20 to 22 inches, most of which falls in May, June and July, the growing months. Of course there are dry seasons and wet seasons, just as there are in any other section, but a complete crop failure has never occurred in the Judith Basin.

Farm lands in the famous Judith Basin district can still be had for $15 and up per acre. One good crop will pay the purchase price.

$1 A Bushel for Wheat.

Diary products are in continuous demand and bring good prices. First-class milch cows are worth from $40 to $60 each. The demand for pork is never supplied, much fresh pork being shipped in. There is an unlimited demand for all the eggs and other poultry products that may be produced. Eggs seldom go below 30 cents per dozen and frequently command from 40 cents to 60 cents per dozen. Spring chickens bring from 60 cents to 75 cents.

The water of the Judith Basin is exceptionally fine for drinking and all domestic purposes, being entirely free from alkali. There are a countless number of springs all along the streams, some of which furnish soft water the year around. The average depth of wells is about 30 feet. Artesian wells have been bored in several of the localities and in nearly every instance flowing water has been encountered at moderate depths.

Lewistown, the county seat, and the terminus of the Montana Railroad, is a place of about 4,000 inhabitants. The United States local land office for the district is located here. It is a little west of the center of the county, and was first settled in the early '80's. It is a good residence town, having a spendid school system, including the Fergus County free high school. There are six churches, the Episcopalian, Roman Catholic, Presbyterian, Methodist, Baptist and Christian. There is also a modern hospital, built and conducted by the Catholic Church. It has three banks with a combined capital of $500,000 and deposits aggregating $3,000,000. Clearances for last year were $7,345,000. Lewistown offers business opportunities equal to those offered by any city of its size in the country. To manufacturing industries of the

right kind it offers substantial advantages; a cheap and abundant water supply, cheap fuel in the way of coal, and a population which is becoming more numerous as the country settles up, thus assuring an increasing market for the products of local manufacture. There is a fine opening for a brick and tile manufacturing plant as the shale is abundant and of fine quality; fuel is cheap and railroad rates low on the manufactured product. There is a large field open to the party who first establishes himself in this industry and the quality of raw material assures an article equal to any made in the State.

The city has a municipal water system which affords a copious supply of the purest water taken from a spring about six miles from the town at the head of Big Spring Creek. There is a fine sewer system now in use, and an extensive addition will be added in the near future. There are two telephone systems affording both local and long distance service. Also an electric lighting plant. A well equipped and disciplined fire department is maintained and there has not been a loss of $6,000 in the last five years from fire.

Moore, the second town of importance in Fergus County, is twenty miles south and west of Lewistown, on the Chicago, Milwaukee & Puget Sound Ry. in the heart of a splendid farming district.

Although but five years old, Moore has a population of over 800, has two banks, well stocked mercantile establishments, two hotels, three restaurants, two barber shops, three elevators, three lumber yards, creamery, machine and blacksmith shops, two livery stables, two telephone exchanges, a volunteer fire department, a band, and better than all a tributary country unsurpassed for its fertility and productiveness. There are Christian, Methodist and Catholic churches. Lodges and societies are well represented. Moore has a graded school to which is being added a high school course. It also has a live and up-to-date newspaper. The business interests enjoy a profitable patronage and the town has grown steadily from the first. It is the center of the grain belt. More grain is marketed there than in any other town in the Judith Basin.

A live commercial club is maintained and inquiries addressed to the secretary will receive prompt attention. Moore offers a central location for a flour mill and cereal factory. Fuel is cheap coal of fine quality being mined near Moore.

Kendall is the principal town in the mining section. Smaller towns are Garneill, an important trading point, Buffalo, Straw, Hobson, Benchland, Mendon, Utica and Stanford, all in good farming regions. Located in the western end of the county on the Great Northern Ry., 70 miles southwest of Great Falls is Stanford, which is being rapidly built up and has a population of about 200. It is surrounded by a good farming country, has a good school, three churches expect to build and three elevator companies have purchased locations. There are said to be in Stanford openings for stores, and for a doctor, lawyer, dentist and druggist. With the settlement of the country tributary to it Stanford will experience a steady growth.

Windham in the Sage Creek Valley is in a fine farming country, and is near the coal mines that are now being developed on a large scale.

FLATHEAD COUNTY.

Flathead County in the northwestern part of the State, on the Pacific slope of the Rockies and from which the new county of Lincoln was this year formed, ranks high in three of Montana's industries, to-wit: Lumbering, agriculture and fruit raising. It is a great timber country. It is estimated that the county contains 40,000,000,000 feet of western larch, Douglass fir, yellow pine, spruce, lodge pole pine and cottonwood. The first three varieties predominate. There are 30 saw-mills in the county that cut 147,000,000 feet of lumber last year. According to the reports of the Lumber Association 3,443 cars of lumber are shipped out of the county annually. The large amount of spruce timber makes this country a very fine field for a pulp and paper mill. This timber can be bought at a low figure, and there is an abundance of water and water power. Standing timber owned by private individuals sells at from $1 to $2.50 per thousand. There is a large amount of waste material at the numerous saw-mills that could be made into boxes. A box factory at a central point like Kalispell could utilize this by-product at a handsome profit.

The opening this year of the Flathead Indian Reservation, a large part of which is in Flathead County, is an event which has aroused general interest throughout the country. The President issued a proclamation relating to the opening and designated Kalispell as a place where

Recreating in the Mountains.

those may register who desire to make homestead entries of Flathead lands. The time for registering was from July 15 to August 5, 1909. All applications received before August 9 were thoroughly mixed and envelopes selected therefrom indiscriminately, one at a time, and the applications therein numbered as selected. The numbers thus assigned control the order in which entries may be made. For instance, the person whose application is numbered "one" will be given the first choice of all lands subject to entry on the reservation for which the application was presented; the person to whom

number "two" is assigned will be given the second choice, and so on. As soon as numbers are assigned in this manner, notices giving the numbers assigned will be mailed to the addresses given in the applications for registration, and in cases where applications are presented by agents, notices will be mailed to both agents and the persons by whom they were appointed. Registration did not cost anything except the notary's fee. Those who were successful in securing the right to enter lands will not be required to make actual entry until April 1, 1910, or later, according to number, and the intervening period may be used in examining the land.

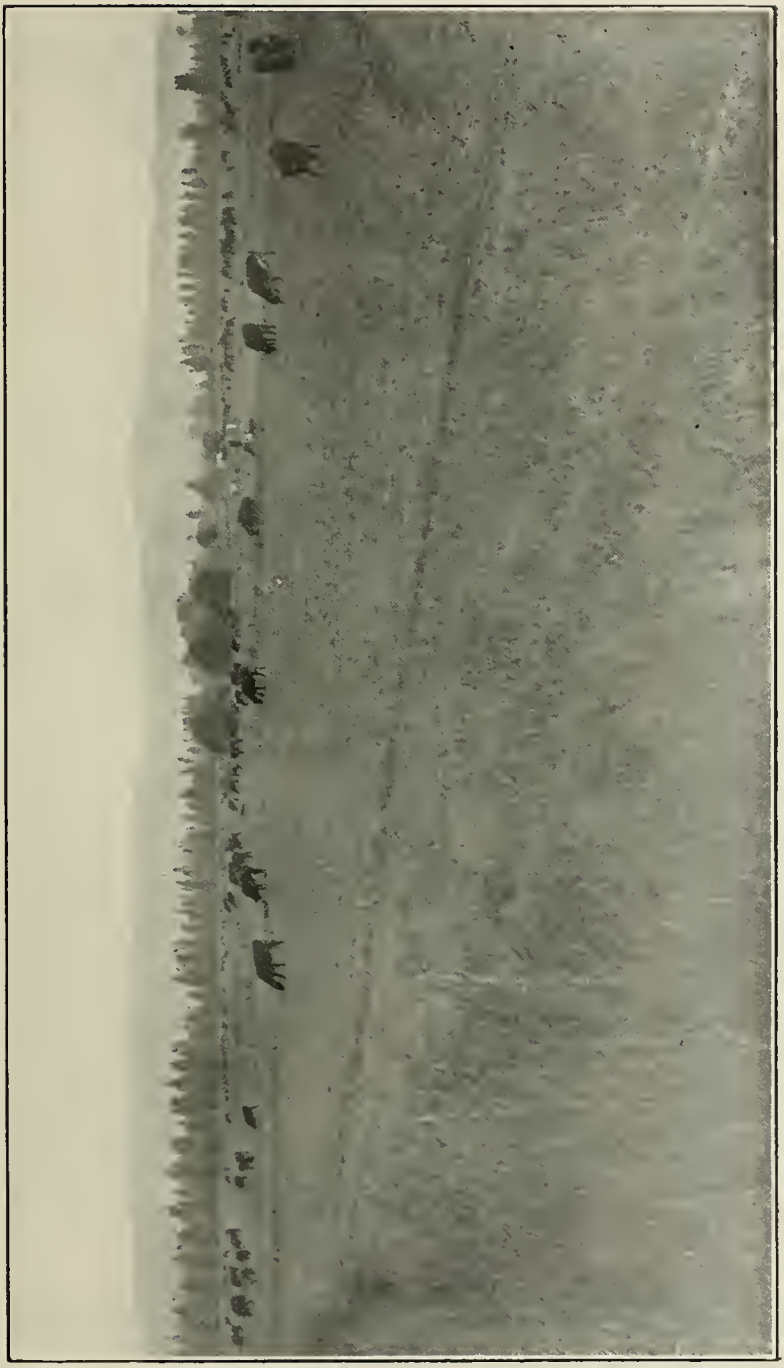
Commissioners appointed by the Government have classified the lands subject to entry on the Flathead Reservation as follows: 40,229 acres as agricultural lands of the first class, 71,091 acres as agricultural lands of the second class, and 336,189 acres as grazing land. These lands have been appraised at from $1.25 to $7 an acre. Portions of the lands thus classified on the Flathead Reservation have been withdrawn from entry under the Reclamation Act and will not be subject to entry under this opening.

At the time of making entry a payment of one-third of the appraised value of the land must be made and the remainder may be paid in five equal annual installments. Residence must begin within six months after the date on which the entry is made and continued, with cultivation, until a patent has been earned, either by five years residence and culitvation and the payment of the installments annually, or by fourteen months actual and continuous residence and cultivation and the payment of all purchase money.

Kalispell is a gateway to the Flathead Reservation and is prepared to take care of the thousands who will come to register for the opening, and of those who, after the drawing, will desire to go into the reservation for the purpose of examining the country. A request addressed to the Secretary of the Chamber of Commerce, Kalispell, Montana, for information on the subject will bring a pamphlet on the Flathead Reservation and country which will prove both instructive and interesting.

The principal farming district is the Flathead Valley around Kalispell. The agricultural land around Kalispell has an area of 250,000 acres. This is the oldest farming district in the county. Improved lands sell at from $40 to $75 an acre. All of the small grains yield abundantly and without irrigation. Oats, wheat, hay, barley and rye are the principal crops. The oat yield is over 1,000,000 bushels, and wheat 600,000 bushels. Most of the wheat is manufactured locally, and flour is shipped to Spokane, Seattle, San Francisco and Japan. Potatoes are a very important crop, and are shipped in carload lots to Eastern markets.

The quality of the products raised in Flathead County has been proven by the many prizes they have won at exhibitions and fairs. Some settlers have



Some of the Finest Dairy Herds Graze in This Most Delightful Valley.

written letters giving their experiences in farming and one, which is representative of many, is reproduced here:

"I came to the Flathead Valley, Montana, in June, 1903, and my first impression of the valley was not good, from the fact that I had never been in a mountainous country before and everything looked rough, and the crops looked so backward and poor, that I was almost discouraged. Since, I have learned that the crops do not commence to grow above ground until July, but they are making roots, and when warm weather comes, they are strong and shoot up as high as the fences in a month.

In Glazier Park.

"After looking over the valley for a month, I purchased a quarter section about six miles north of Kalispell. The quarter lays comparatively level and the improvements were log buildings and rail fences.

"The soil is a sandy black loam, about two feet deep, and the crop then growing did not look good to me, and I had to pay $800 for the crop, and $6,500 for the farm.

"When I harvested the grain on the summer fallowed land, oats averaged four feet high and yielded 80 to 90 bushels to the acre, and oats that were disked in went about 50 bushels to the acre. The winter wheat went 40 bushels to the acre and the spring wheat went 30 bushels to the acre. In nearly all of this grain I could not cut a full swath with the binder. Of this crop, for which I was afraid to pay $800, I sold $2,500 worth and kept all my feed and seed for the next year.

"Some samples of the grain were sent the following year to the World's Fair at St. Louis, and to the Portland Fair, and I received a gold medal in each instance.

"My potatoes and carrots, which were about all the vegetables that were in, were simply immense, the potatoes going about 400 bushels to the acre, and the carrots were also heavy, but I did not weigh them or measure the ground.

In the Valley.

"The last two years were not so good, owing to the fact that they were the dryest years of record in the valley, and my wheat went about 24 bushels to the acre, and my oats averaged about 25 bushels. There was no rain at all after the middle of June. It has surprised me what crops will grow in the valley with as little moisture, and I account for it from the fact that there is more or less sub-irrigation. Every morning the moisture seems to

come to the surface. And in any other country I do not believe you would have raised enough to cut it with sheep shears.

"We have the purest of water, and the winter climate is very mild, exceedingly so. There were very few days in the three years that I have been here that a man could not have worked out of doors.

"My general impression of the country is that it is the finest country that I ever lived in, and the health of the family never was better, and we would not go back to the country from where we came for anything. We came from Holt County, Nebraska, and are now very glad that we have located in the Flathead, where we expect to remain.

"Yours respectfully,

"J. H. STUBBS.

"July, 1906. "R. F. D. No. 1, Kalispell, Mont."

"Dey's Good Plums, Papa."

The climate of Flathead is so subject to certain local conditions that it is very hard for the Weather Bureau to make forecasts with any degree of accuracy. The valley is surrounded on all sides by mountain ranges, and Flathead weather is different from that of Eastern Montana or of the Spokane country. Ninety-six degrees Fahrenheit is the hottest ever recorded by the Government thermometer and in winter zero is ordinarily not reached more than half a dozen nights in the season. The annual rainfall is 15.45 inches which is sufficient to raise very fine crops. The highest known yield of

non-irrigated wheat was 76½ bushels per acre, and of oats was 128 bushels per acre.

The average date for the last killing frost is May 5, and for the first is October 10.

The snowfall is heavy and unaccompanied by wind. The snow lies on the ground all winter, making logging and heavy hauling easy, and protects the winter wheat crop.

There are only two weather bureaus in the United States that show less wind per annum than does that at Kalispell.

The altitude is 2,900 feet. The mountain air is pure and invigorating and the health of the inhabitants is good.

The location of this county on the western slope of the mountains, which affords protection against the prairie storms and wind, and its position in the northern part of the United States where the climate has sufficient rigor to make vegetation hardy, and at the same time hold in check or destroy insect pests, all go to make the ideal fruit country. The shores of the great Flathead Lake, the largest body of fresh water west of Lake Michigan, are now being converted into magnificent orchards.

Aside from its great commercial value it is one of the beauty spots of the continent, and is visited annually by increasing crowds of enthusiastic tourists. On the north and south ends the shores are level prairie lands. On the east side the shores rise rather sharply up toward the main range of the Rockies while on the west the slope away from the lake is more gradual and the shore line is more broken by deep bays and valleys reaching back in the hills. Both east and west sides are covered with timber which adds additional color and charm. This lake is the great attraction of northwestern Montana and is usually the crowning argument in deciding the newcomer to remain in Flathead County.

The adjacent land is rapidly being cleared of timber and many fine orchards are now bearing and yielding their owners great returns. Thousands of trees are being set out annually and the business is just in its infancy. Apples of splendid flavor and color are raised without irrigation and are shipped to the eastern markets by the fruit growers' association. In 1907 Flathead County took 64 per cent of all premium money offered at the Montana State Fair for fruit. Nine varieties of peaches were exhibited and took down every prize for peaches. The county invariably takes down the silver cup for the best individual fruit exhibit, or the big prize for the best general collection of apples.

Among the many varieties of apples successfully grown are McIntosh Red, Rome Beauty, Wealthy, Wagner, Northern Spy, Gravenstein, Duchess, Alexander and Yellow Transparent. A bearing orchard will yield 500 boxes of apples per acre which will sell at from $1.25 to $1.75 per box. Crab apples are raised in great abundance and are eagerly sought for by a market of unlimited demand. They require less care, and often yield larger returns than the regular apple. Probably the most prolific fruit crop raised is cherries, and especially the large sweet cherry. The two leading varieties are the Bing and Royal Ann. Flathead cherries shipped to New York command

a price of 40 cents per pound. The Flathead cherries come on the market when cherries from all other regions are out of market, and owing to their superior size, color and quality and freedom from worms, find a ready market along the line of the Great Northern Railway to the east. On the local Montana market they bring from 11 to 20 cents per pound. A two-year-old tree will bear a gallon of cherries, and one ten years old from 100 to 200 pounds. One hundred trees are set to the acre, and figuring an average yield of 150 pounds per tree for a mature tree, makes an acre yield of 15,00 pounds. If sold at an average price of say 15 cents per pound the gross income for one acre is $2,250. Pears, plums, prunes, strawberries, raspberries and peaches are also successfully grown. Last year one grower took $715 off less than 1 1-2 acres of strawberries, and another grower took $900 off an acre of raspberries.

Pears and a Silver Dollar.

These fruits all mature in any part of the valley, but the lake shore is considered a favored spot owing to the equalizing influence on the atmosphere of so large a body of water, and further owing to the fact that the lake shore residents become fruit specialists, owing to the fact that this land by reason of its slope and gravel, is unfit for ordinary grain farming. An unusual freedom from pests is enjoyed and a wormy apple is absolutely unknown. The grower will agree to give the buyer his entire crop if one worm is found therein.

Striking an average of yields and prices per acre for the past few years in the Flathead Valley, under the supervision of intelligent farmers, we get the following results, gross: Wheat, 40 bushels at 80 cents, $32; oats, 70 bushels, (2,800 pounds), at $1.10 per cwt., $30.80; rye, 35 bushels at 50 cents, $17.50; potatoes, 300 bushels, (16,800 pounds), at $1 per cwt., $168.

The average yield per acre of a good orchard under intelligent management, without irrigation, and with mature trees is as follows:

Apples, 500 boxes at $1.00	$ 500.00
Pears, 500 boxes at $1.25	625.00
Prunes, 720 crates at 75 cents	540.00
Plums, 720 boxes at 75 cents	540.00
Peaches, 600 boxes at 80 cents	480.00
Apricots, 600 boxes at 80 cents	480.00
Crabs, 720 boxes at 85 cents	612.00
Cherries, 19,200 quarts at 8 cents	$1,526.00

This estimate on cherries takes into consideration an average of both sweet and sour varieties. The sweet cherries taken alone will show a higher revenue.

The smaller fruits under the above conditions are as follows:

Raspberries, 5,625 quarts at 10 cents	$562.50
Strawberries, 5,000 quarts at 8 cents	400.00
Currants, 3,750 quarts at 6 cents	225.00
Gooseberries, 3,125 quarts at 6 cents	187.50

Flathead County is rapidly becoming famous as a resort for summer tourists. Its three hundred lakes and many miles of trout fishing streams are a great attraction for the fisherman, and its mountain wilds are filled with all the western varieties of game.

The northwestern portion of the county from Lake McDonald north to the International Boundary Line, contains about 30 glaciers, and is one of the most beautiful scenic spots in the United States.

On Flathead Lake.

Flathead Lake is becoming very popular as a location for summer homes, and a great many people from all over the State of Montana are acquiring the water front lands for the purpose of building cottages for places of residence during the summer.

This lake has most excellent boat service and all points thereon have daily connection with the outside world, by boats to Somers, and railway to Kalispell.

Kalispell, the county seat, has a population of 8,000 people, is enjoying a very rapid growth, and is an up-to-date and modern city. It is the most important jobbing point on the Great Northern Railway between Grand Forks and Spokane, and its wholesale houses sell goods from Havre, Montana, to Bonners Ferry, Idaho. The United States local land office is located here. The population of the county is not far from 25,000 people.

GALLATIN COUNTY.

Gallatin was the pioneer county of Montana in agriculture and claims to be the greatest. The beauty and productiveness of the Gallatin caused Prof. Hayden to exclaim: "Gallatin is the Egypt of America," and Robert Ingersoll to remark: "Gallatin is surely a dimple on the fair cheek of nature."

Farming began in 1863 and the industry has grown to such an extent that 600,000 acres are now under cultivation. Nevertheless it is capable of supporting, and has room for, a population ten times greater than it has to-day. One reason for this condition is the large size of the farms. A farm of 700 or 800 acres is not uncommon, and farms half that size are the rule. The early settler was not content with 160 acres but secured title to as many acres as he could. Since the application of modern, scientific methods of farming and the growth of land values, has come a realization that the day of the bonanza farm has passed. Many farmers, who acquired numerous farms, some as many as eight or ten, are growing old, feel that they have earned a rest, do not care to undergo the increased labor diversified and intensive farming requires and are willing to sell the whole or a part of their lands at prices which seem low for soil of such marvellous productiveness.

Turkey Red Wheat—58 Bushels to the Acre.

Large farms are being broken up and the era of "the little farm well tilled" has begun.

About 300,000 acres of the Gallatin Valley are irrigated. This land produces from 50 to 75 bushels of barley per acre; from 80 to 140 bushels of oats; from 35 to 70 bushels of wheat; from 300 to 500 bushels of potatoes; strawberries, $700 to $1,200 per acre; currants, gooseberries and raspberries produce abundantly; hardy varieties of apples, plums and cherries are proving to be good producers, and more orchards are being set out each year. Radishes, lettuce, onions, peas, carrots, parsnips, beets, turnips, cabbage, beans, sweet corn, tomatoes, pumpkins squashes asparagus and celery all produce abundantly. In about 1880 certain Gallatin farmers began dry farming in portions of the county supposed not to be capable of raising grain without irrigation. The result was momentous. Immense wheat crops were produced on these dry lands and their owners became "wheat barons." The area of dry farming has been extended from year to year and a large part of the famous Gallatin wheat belt consists of lands not requiring irrigation. On

Every Farmer Carries a Check Book.

these dry farms without irrigation wheat yields from 25 to 60 bushels per acre and hulless barley from 30 to 50 bushels.

A fodder crop, which is grown quite extensively in the Gallatin Valley, is the red and alsike clover. Under irrigation two crops of this clover are obtained in the year, yielding from 3 1-2 to 4 tons in two cuttings. Cured, as it may be in our dry climate, it makes most excellent feed for all classes of stock, particularly for milk cows and growing stock. This crop is favored in the valley because it fits so well into the rotation of crops where large amounts of grain are grown. In some parts of the valley alfalfa is grown and yields largely, giving as much as 4 to 5 tons of hay per acre in two cuttings. Timothy is another fodder crop that grows remarkably well in the valley under irrigation, often yielding from 3 to 4 tons of hay per acre, which sells from $7 to $12 per ton in the stack.

The Gallatin Valley was once a great lake bed, shut in by the surrounding mountains. As a result of this, there is an alluvial deposit of rich, black, loamy soil from a few feet deep to 100 feet in places. Years of farming has

demonstrated that in the entire country there is no soil better for general farming. Farmers of Gallatin County received gold medals on oats, wheat and barley at the world's fairs recently held at St. Louis, Omaha and Portland. They also won a silver loving cup for the best exhibit of barley in an international barley exhibit held at Salt Lake City. These facts prove the quality of the grain. Because of its superior quality, many cars are shipped every year to all parts of the United States to be used for seed. Oats and hulless barley are shipped to Michigan and Pennsylvania to be used for cereal food purposes; and malting barley has been shipped to Wisconsin, Germany, Japan and Australia. A premium is paid on all of these grains because of their superior quality.

Live stock are raised in connection with farming, and in outlying districts as the leading industry. Horses, cattle and sheep of the highest grades are to be found.

The Chickens Pay All Expenses.

Dairying in the Gallatin Valley is as yet in its infancy. It has not kept pace with the other resources here or in any measure with the increase of population. Between $1,200,000 and $1,500,000 in dairy products are shipped into Montana each year and this should all be produced in the State. There is a splendid profit in dairying, butter never selling lower than 25 cents per pound, and seldom falling below 30 cents.

An interest, yearly increasing, is being shown in raising poultry as an industry. There are pens of chickens of the purest breeds that have taken prizes at fairs within the State, and in at least one instance in another state. The possibilities of profits in the business will be appreciated when it is learned that in 1908 eggs sold as high as 50 cents, for months sold at 45 cents and never sold below 20 cents per dozen. Spring chickens sold at prices ranging from 75 to 40 cents. Eggs and poultry to the value of $1,200,000 are annually shipped into Montana. These products should be raised in the State and the money kept at home.

The Northern Pacific Ry. was the first railroad to traverse this beautiful valley. It extends from east to west through the central portion of the

county for a distance of seventy-five miles. The principal towns are all located on this line. The main line coast extension of the Chicago, Milwaukee & St. Paul Ry. runs along the northern border of the county for a distance of forty-one miles and is developing that section very rapidly.

The first section of the Gallatin Valley Electric Railroad is under construction at the present time. This section will connect Bozeman with Ferris Hot Springs and Salesville and will be eighteen miles in length. This is a standard gauge road, will be fully equipped to handle freight and passengers and is the first of its kind to be built in Montana.

Lands adjacent to this electric railroad, now selling at from $50 to $75 per acre, will command a market value of from $100 to $250 per acre within a few years.

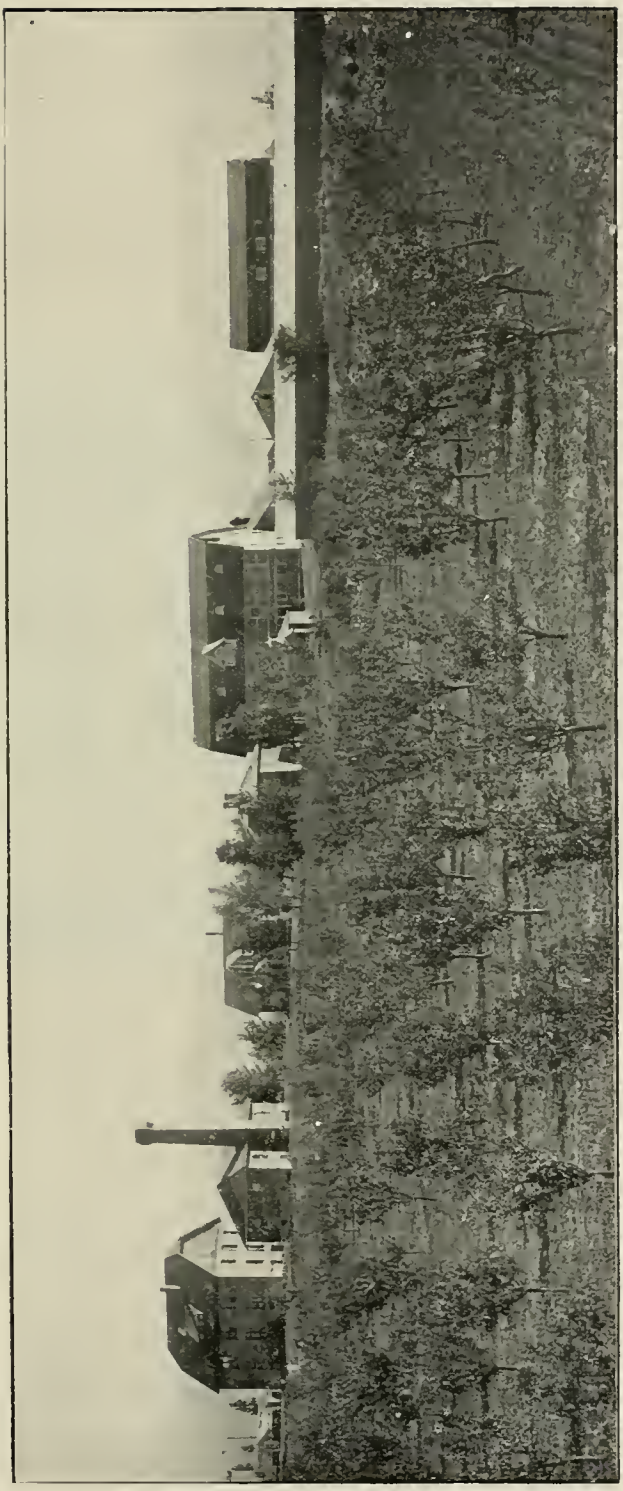
The county seat is Bozeman, "The Beautiful," a city modern in every respect, with a population of 8,000, with fine residences, surrounded by beautiful lawns and shade trees, churches, schools, business blocks, mills and elevators. The city owns the water works, there are sewers, a paid fire department, paved streets, five miles of cement sidewalks, parks, street car lines, and the grounds of the Inter-State Fair Association. The Montana Agricultural College, the largest educational institution in the State, the Montana Agricultural Experiment Station, the United States local land office and the United States Fish Hatchery are located at Bozeman. It is a beautiful residence and educational city and an important business place. There are flouring mills, a cereal food factory, several elevators, a brewery and numerous small factories. Every year in September Bozeman gives a "Sweet Pea Carnival," an unique festival that attracts thousands of visitors.

Alfalfa Beats Corn.

Other flourishing and growing towns are: Belgrade, a great grain shipping point in the center of the valley having elevators and flouring mills; Chesnut, where coal mines are located; Logan, an important railroad junction; Manhattan, noted for its barley malt; Maudlow, in the Sixteen-Mile Creek country; Salesville, in a rich farming region; Three Forks, a town on the Milwaukee road which has sprung up within a year, has a large railroad pay-roll and is the supply point for a section rapidly filling with settlers; and Trident, where a million dollar cement factory is being built.

The Gallatin Valley, being surrounded with mountains which are covered with timber, has an abundant supply of wood and lumber. At Chesnut and Storrs and in the West Gallatin Basin are large fields of coal. Copper, lead, corundum, asbestos, marble and onyx are also found in the mountains.

The water supply for irrigation is ample without even creating any storage reservoirs. When an irrigated farm is sold a permanent water supply goes with it.



Montana Experiment Station, Bozeman.

Wheat sells at from $0.60 to $1.25 per bushel; oats at from $0.90 to $1.50 per cwt.; barley at from $0.90 to $1.50 per cwt.

Unimproved, unirrigated land sells at from $4 to $15 per acre. Improved dry land sells at $15 to $40 per acre. Improved irrigated land with a permanent water right sells at from $40 to $85 per acre, or higher in favored locations.

Few places in the world present equal attractions for a summer outing. The climate is ideal, the geology so interesting that professors of that science in Harvard and other universities have brought their students hither to study it in the field. There is water, wood, grass, freedom from insect pests and reptiles for campers; meadows and hills and parks are carpeted with beauti-

A Camper's Summer Home.

ful wild flowers; trout leap in the mountain streams; for the hunter are grouse and ducks and geese and deer and elk and bear, and scenery so entrancing that the man in the United States best qualified to pass judgment in such matters was impelled to say:

"From the entrance of the West Gallatin Canyon the view down the valley cannot be surpassed for beauty in this land of picturesque scenery. The gently-rolling, grass-covered hills; the little streams meandering through them, fringed on either side with a thick growth of cottonwoods; the numerous farms, golden with their fields of wheat; and over all, in the distance, that peculiar, soft, golden haze, which characterizes the autumn days in this mountain region, lends to the whole vision a charm that is long remembered. As the setting sun of autumn shines upon the valley and surrounding mountains, all objects seem to be invested with an unusual beauty, which reminds one of the lines of the poet:

"'And sweet calm days, with golden haze,
Melt down the amber sky.'

"The little side streams that come in from the mountains, and the various main branches as they traverse the broad, grassy, rolling, valley, with their fingers or belts of green cottonwood foliage, added much to the charming beauty of the scene. Then, hemming it in on every side, are fine ranges of mountains, which now seem depressed into low passes or are isolated; then rise or swell into lofty peaks which seem, as it were, to have been thrust up from the level plains around. Late in the day the atmosphere appears unusually clear and transparent, and every peak and canyon stands out in a relief so bold that one seems able to look into the very recesses of these grand ranges. So close do they appear to the beholder, and so distinctly are the details brought out that they seem to lose a portion of that dignity which arises from their grand loftiness. The mountains on the south side of the valley from Spring Canyon to the Canyon of the West Gallatin are not very rugged, and are covered more or less with timber and a vast amount of superficial material, concealing the rocks, except in the valleys of the streams.

* * * * * * * *

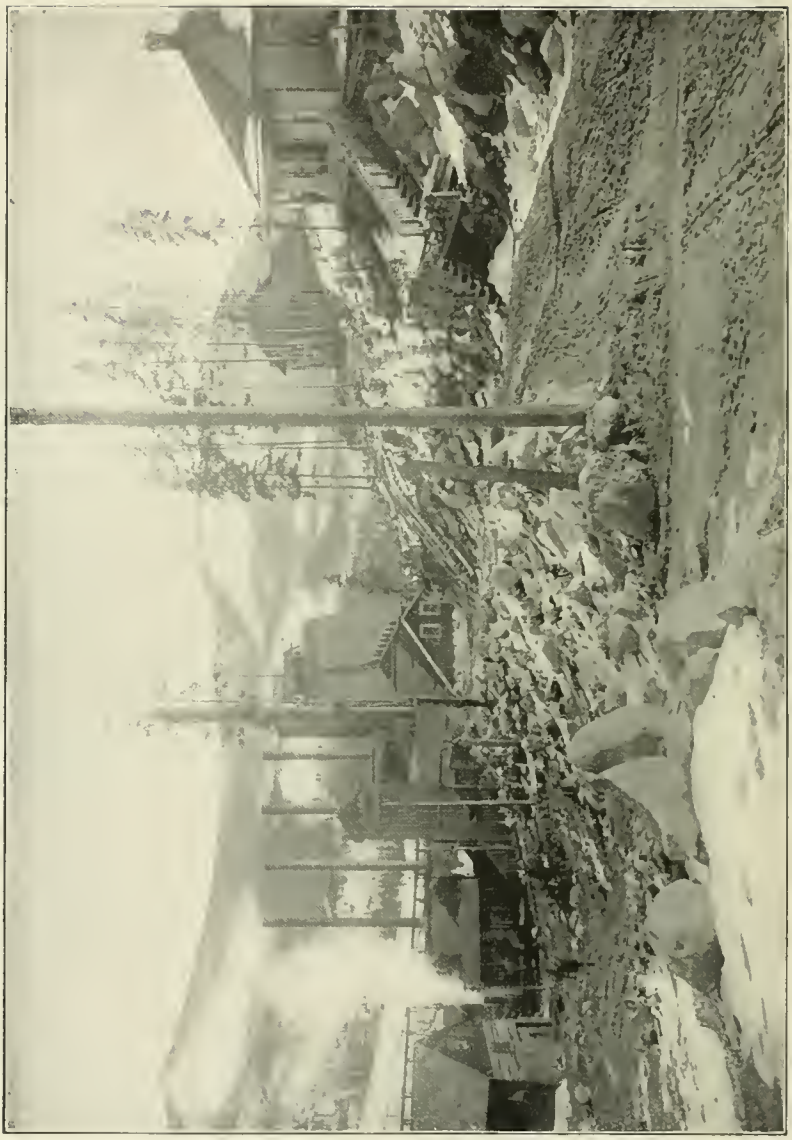
In the morning the east ranges are usually covered with a smoky haze which makes them appear distant and indistinct, while the ranges opposite the sun are brought out with a singular relief. In no country are the varied phases of scenery better shown than in this. For the artist this country must open up a new world." (F. V. Hayden in Report of U. S. Geological Survey for 1872).

GRANITE COUNTY.

Granite County, in the western part of the State, has been noted for the great productiveness of its mines. Mining and stock growing have been, and still are, the chief industries. The mines yield silver, lead, sapphires and gold in both placer and quartz formation. Before the fall in the price of silver this county was the scene of great activity and prosperity. In it were located many silver mines the chief of which, the Granite-Bimetallic, was one of the richest mines in the world. The decline in the price of silver was a blow from which the mining industry of this county has not recovered. "Granite," said the Ninth Biennial Report of the Bureau of Agriculture, Labor and Industry, "four miles up the mountain from Philipsburg, appears now as what was formerly one of the greatest silver mining camps on earth where thousands of men were formerly employed in the mines and mills. Indeed it is apparent that at present there are only as many hundreds as there were thousands in the palmy days of the camp."

In spite of this set back there are many men who remain firm in the faith that Granite will again take a leading place among the wealth producing counties of the United States. They have much on which to base their faith. There are many partially developed properties that give promise of becoming producing mines when the necessary development work shall have been done. The neighborhood of Garnet, for instance, offers fine opportunities for capitalists who are willing to take reasonable chances as, indeed, do many other districts in Granite County. While fallen from the great proportions of former years the mineral production is still considerable.

In this county mining has always been the chief industry, and stock



The Granite-Bi-Metallic Mine.

raising the next, and the capabilities of the county for farming have, to some extent, been overlooked. Farming has been limited to valleys along the Flint and Willow creeks and the Hellgate River. Good crops of wheat, oats, rye, timothy and clover are grown but the land is chiefly in hay. With proper effort the land under irrigation could be increased by the construction of additional ditches. While much of the county is mountainous and mining and stock raising may be expected to continue as the leading industries, it is probable that a considerable area of the county is adapted for farming without irrigation on the dry farming system. One advantage farmers have is proximity to mining camps within the county and to Butte and Anaconda.

Near Drummond it is possible to grow any of the small fruits and there are fine apple and cherry orchards.

Philipsburg, the county seat, is the terminus of a branch line of the Northern Pacific which leaves the main line at Drummond. It is the principal town in the county. Smaller places are New Chicago, Drummond and Bearmouth.

JEFFERSON COUNTY.

Jefferson County is bounded on the west by the main range of the Rocky Mountains, is wholly on the Atlantic slope of the continent, and has an area of 1,082,000 acres, about one-half of which is surveyed, the remainder being mountainous. It is within what is geographically known as the southern section of Montana and is drained by the Jefferson, Boulder and Prickly Pear rivers and their tributaries. Butte, the largest city in the State, lies within a few miles from the southwestern boundary, and Helena, the capital of Montana, is distant but a few miles from the northeastern boundary. The climate is good, varying with the altitude, and the rainfall light but sufficient.

The three transcontinental railroads which traverse Montana, the Northern Pacific, the Great Northern and Chicago, Milwaukee & St. Paul, cross the county and afford access to markets. There are also several branch lines connecting with the main lines. Surveyors are at work locating the line of an electric railroad which is to be built from Helena to Butte and which will cross the county from one end to the other. It is expected that this line will be in operation within a year.

Mining, stock raising and farming are the principal industries. Jefferson County is famous for its mineral wealth and for the great production of its mines. The mountains are nearly all mineralized and are crossed and bisected with ledges of mineral bearing rock. Over 24,000 quartz claims have been located and many mineral deposits, no doubt, are yet undiscovered. These claims represent undeveloped wealth worth many millions of dollars and capital and labor will derive large returns from their development. Almost without exception mining claims which have been developed have become paying mines. There are 900 patented mineral claims in the county many of which are producing mines. Some of the richest mines are at Elkhorn, the Elkhorn Queen and the Copper King in the Elkhorn district; the Hope, Bullion, Buckeye, Eva May, Comet, Copper Bell and Robert Emmet in and about Basin and Boulder; the Blue Bird, Minah, Alta, Gregory and Minnesota in the Corbin and Wickes neighborhoods; the Liverpool,

Little Nell, Free Coinage, Mammoth and Carbon Chief near Clancy; and the Buster Jim, Columbia and Sunlight located near Whitehall. There is much activity in some of the mining districts and a large increase in the mineral yield should result from the extensive development work which is being done.

Stock raising has been an important and prosperous industry from early days, the native grasses being nutritious and plentiful. The climate is favorable, little winter feeding being necessary, and fine horses and fat cattle are shipped in large numbers. The mountains contain areas of land not suitable for farming but which produce an abundance of grass and insure the permanent importance of the stock growing industry.

The area devoted to farming is increasing yearly. There are tracts of fertile irrigated lands in the valleys which constitute the principal agricultural

Town of Elkhorn and the Elkhorn Mine.

districts and it is believed that it is possible to considerably increase the acreage of lands under irrigation by building reservoirs and constructing additional ditches. Dry farming has also been tried in places and has been successful.

The Jefferson Valley is from ten to fifteen miles wide, including Jefferson Island, and is about thirty-five miles long. It extends from the canyon of the Jefferson on the east to Waterloo on the south and west. Whitetail Deer, Fish and Pipestone creeks water this region which contains many fine farms. The Prickly Pear Valley has the advantage of being near Helena.

Oats, winter wheat, rye and hay are the principal crops. Irrigated oats yield from 50 to 100 bushels to the acre and dry land oats from 25 to 50 bushels per acre. The oats often weigh 44 pounds to the bushel. Winter wheat and rye yield from 30 to 50 bushels per acre on irrigated and from 15 to 40 bushels on non-irrigated land. Native grasses make excellent hay and alfalfa yields from 3 to 6 tons an acre. Everything that is grown

brings high prices. Oats, rye and other grains sell at from 60 cents to $3 the hundred weight and hay from $8 to $25 the ton; potatoes from 75 cents to $4 the hundred weight; eggs from 22 to 80 cents per dozen; butter from 20 to 75 cents per pound and cream at a price even more profitable than when made into butter. Sugar corn sells at from 25 to 50 cents per dozen ears, cabbage from 3 to 7 cents per pound, and all garden truck for similar high prices.

In fact, owing to location and railroad facilities, the whole of Jefferson County is especially favorably situated in relation to the home markets. It has a population in large part engaged in mining who are consumers of home grown products, and the two principal cities of Montana are its doors. These facts have encouraged diversified farming. On account of the product-

A Comfortable Home.

iveness of the soil and a climate favorable for the raising of all kinds of grain, hay and vegetables, the farmer finds it profitable to raise not only staple crops but also to engage in the raising of fruits and berries, the poultry business and dairying. Gardens are found growing everything from the pumpkin to sugar cane and potatoes.

Fruit growing is becoming an important factor in the development of the county and many acres of orchards have been set out. There are no insects or worms to hinder the growth of the tree or destroy the value of the fruit. Hardy apples produce abundantly and of a kind which if not all taken by the local demand could be shipped to New York or even Europe, being of a quality that will keep a year or more.

There is Government land which can be taken up under the homestead or desert land act. The Northern Pacific Ry. is a large land owner. Improved ranches can be purchased at from $10 to $50 an acre and raw lands at low figures.

Boulder, the county seat, is situated in the central part of the county,

thirty-seven miles from Butte and thirty-five miles from Helena. It is a thriving town with good schools, churches, bank, business houses, and many attractive residences. It is the home of the State School for the Deaf and Blind.

Whitehall is the chief trading point in the southern part of the county and of the Jefferson Valley. It is, perhaps, the most populous town, is a railroad junction point and has good schools, churches, and large business establishments. Basin, in a mining region, is where the Heinze mill and reduction works are situated and has commercial establishments, churches and schools; Clancy, on the Great Northern, is in a prosperous mining and agricultural region and is an important railroad point. Corbin and Wickes are centers of mining activity. Elkhorn is where the famous Elkhorn group of mines is located.

In the southeastern part of the county is a mountain of limestone and of rock suitable for the making of cement. The expenditure of sufficient capital and labor on this property would result in the establishment of a great and profitable industry. In this neighborhood, at Lime Spur station, is the largest cave which has been discovered in Montana, and which will be visited yearly by thousands when it is made easy of access and safe to explore.

Jefferson County has four hot springs and summer resorts. The Pipestone Hot Springs are at Pipestone; the Boulder Hot Springs at Boulder; and the Alhambra and Sunnyside Hot Springs at Alhambra. They bring to the county many pleasure as well as health-seeking people and at each place are situated large hotels, plunges, summer houses and cottages. At the Boulder Springs a hotel to cost $150,000 is now being built.

Jefferson County abounds with opportunities for the capitalist, miner, farmer, stock raiser, fruit grower, gardener and dairyman.

LEWIS AND CLARK COUNTY.

Three distinct opportunities exist in Lewis and Clark County for the eastern or middle western man who is growing restive under the stress of conditions there, and who is casting about for another opening where he may take his family with some certainty of bettering his condition and that of his children, and where they may be reared under influences which make for independence in a material way; culture and the refining things of life in an educational way; and for strong bodies in a physical way.

These three opportunities are: First, agriculture, with its allied pursuits of dairying, stock raising, fruit growing, poultry raising and truck gardening; second, the development of the great mineral resources of the county; third, the establishment at Helena of manufacturing enterprises of various kinds and the opening of jobbing houses.

The first opportunity is open to the man of limited means who is endowed with earnestness and progressiveness, and the patience which does not expect the unturned sod to yield a fortune over night; the second demands the attention of the man with capital, common sense and persistency, while the third is one which can be seized with profit by the manufacturer or jobber who is willing to begin on a small scale and to expand gradually. The

opportunities exist, as the facts will show, but let us first take a survey of the county before treating of them in detail.

Pierced by the main range of the Rocky Mountains, Lewis and Clark County lies almost in the middle of the State of Montana and contains within its irregularly shaped boundaries approximately 2,742,191 acres. The heads of many swiftly rushing streams nestle high up in the mountains of this county, those on the western side of the range passing through a region rich in virgin timber, large areas of undeveloped mineral, and teeming with big and small game, until they empty into the Big Blackfoot River, which has scooped out a long valley abounding in natural pasture. Those on the east

Some Helena Homes.

feed the Missouri River and on their course flow through many fine valleys, some of them small but well adapted in every way to agriculture and dairying, while some widen out fifteen and twenty miles and extend farther than the eye can see. The soil there is rich and deep, the climate temperate and the altitude from 3,500 to 4,200 feet. All are flanked by bold, forest-clad mountain ranges, which serve to break the winds and make a more equable climate than is found in a prairie country. The mountains also conserve the winter snows for irrigation and power purposes and they afford ideal summering places with opportunities for fishing, riding and other open air sports.

Midway between the eastern and western boundaries and near the southern boundary, is situated Helena, the capital of Montana, the financial,

political, social and logical jobbing center of the State, having a population, according to the figures of the 1909 directory, of 24,246 souls. This makes it the second largest city in the State, Butte holding first place. Founded originally by gold-seekers in 1863 who mined from what is now its main street over the site of Last Chance Gulch $35,000,000 in gold, its wild scenic beauty and its accessibility from every part of the State proclaimed it the natural site for a large city. Here the southern overland trail bi-sected the eastern, and these routes were subsequently adopted by the railroads.

Helena is claimed to be the wealthiest city per capita in the country. A perusal of Bradstreet's Journal shows that from a list of forty to fifty towns in the United States, many of them having three to six times the population of Helena, none exceed it in bank clearings. It is one of the noted residential cities of the West. Stockmen and mining men whose interests lie hundreds of miles away live here that their families may have the advantages which it offers. It has seven school buildings for graded schools and a magnificent high school. The Montana Wesleyan University is located here, and the Deaconess School for younger children. In addition the Catholic Church maintains two excellent graded schools, one for boys and another for girls, and a high school housed in a new half-million dollar building, while work has been started on a group of buildings for a Catholic College, which will soon be opened in temporary quarters, and a Cathedral which will be a splendid example of church architecture is also being erected. St. Vincent's Academy, conducted by the Sisters of Charity, has been long established and is a noted school for girls.

Lying on the northerly slopes of a spur from the main range, and facing the Prickly Pear Valley, Helena commands a magnificent vista of plain, forest, mountain and lake, which rival in its combined grandeur the most celebrated European scenery. Parked streets enhance the city's attractiveness. All modern conveniences are found here, twenty miles of electric lines, lighting system of both electricity and gas, the purest of mountain water, and an adequate sewer system. Clubs, theaters, gymnasiums, riding, tennis and other athletic clubs offer diversion and recreation, while two miles west of the city lies the Broadwater, one of the famous summer resorts of the Northwest. Here is found the largest enclosed natatorium in the world, natural hot water being piped from thermal springs.

By the building of three immense dams for power purposes, the third of which is now under construction, across the Missouri River a few miles north of Helena, three large lakes will be created, extending a total distance of sixty miles, and passing through a region rich in the most magnificent natural scenery to be found in the Rockies. Limestone escarpments tower upwards on each side for hundreds of feet in some places; the view changes, and range on range of bold mountains are seen, their peaks, snow-clad most of the year, shimmering in the sun; valleys break through the ranges which touch the water's edge, and clear mountain streams abounding in trout empty into the lakes. An arm of the second lake spreads out fan-wise below Helena, which in the fall is a hunter's paradise for ducks and geese. Pleasure craft dot the waters of the lakes already created and several of the clubs have purchased sites for summer homes. An electric line from the city to the

second lake has been surveyed and work is expected to begin this summer. This will open to the city beautiful pleasure grounds. The possibilities of these lakes from a tourist standpoint are just beginning to be glimpsed, and it is believed that before long some big summer hotels will be erected.

All in all, a healthier and prettier city than Helena, offering the same opportunities for a full and varied existence, and with the same rich possibilities before it, would be hard to find.

Persons contemplating taking up one of the many agricultural openings in a region which is new to them, are sometimes dazzled by the bountiful crops which can be produced, and fail to consider other features of the

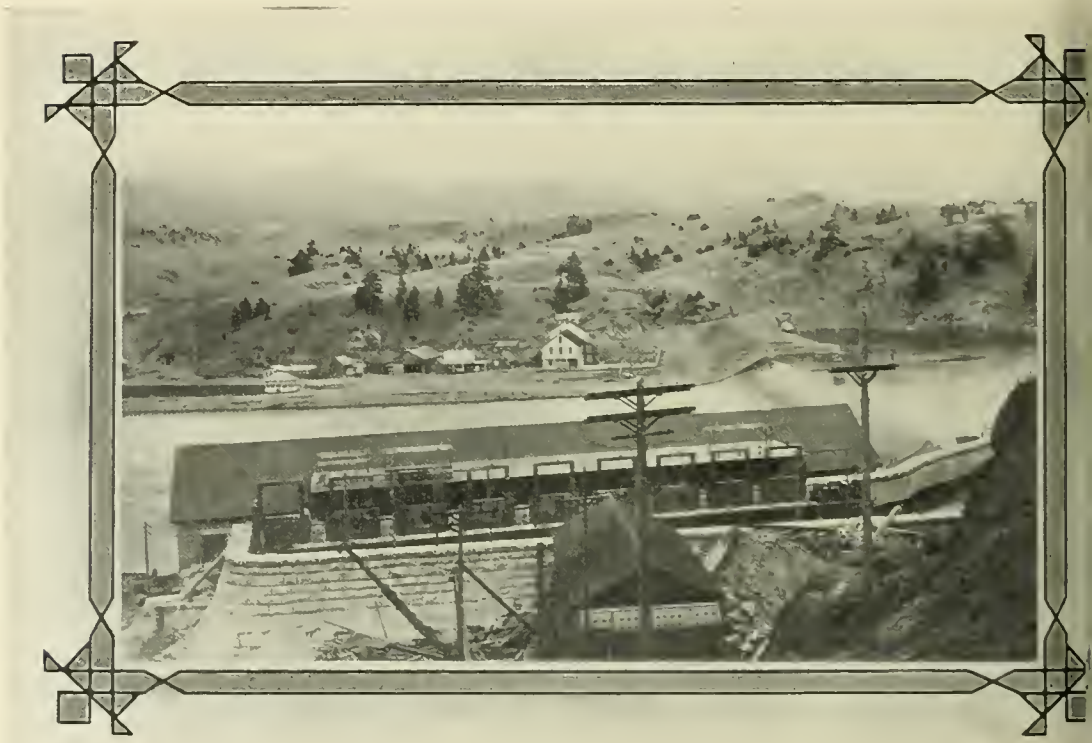
A Model Dairy Farm, Near Helena.

problem which are essential if success is to be attained. These other features are transportation facilities, nearness of a market, and the consuming power of that market. If the market is remote, it reduces the profits of the farm to a great extent, and a small consuming power of a new market has the same effect. Big crops are of little avail without adequate transportation facilities.

Absence of these negative qualities in Lewis and Clark County should be a great inducement to the prospective settler to come here, while on the positive side is great soil fertility, and as long a growing season as is to be found in the State. Not 10 per cent of the farm and dairy products which are consumed in Helena are raised in the county, and not over 25 per cent are raised in the State. For many years to come the local market will consume

everything raised in the county, while seventy-three miles south on the Great Northern is the great Butte market, now largely supplied from points outside the State. To cite a few average prices: Butter averages 35 cents; eggs, 30 cents a dozen; potatoes $1.25 per hundred pounds, and other staples are on a like scale.

Here is what an expert, Prof. F. B. Linfield, of the Montana Experiment Station, says of the Prickly Pear Valley of 100,000 acres at the gates of Helena: "The soil over nearly all of the valley, and especially on the land at present not irrigated, ranges from a sandy to a clay loam, but there appears to be very little of what would be called light sandy soil or of the very heavy clay.



The Canyon Ferry Dam of the Missouri River Power Company.

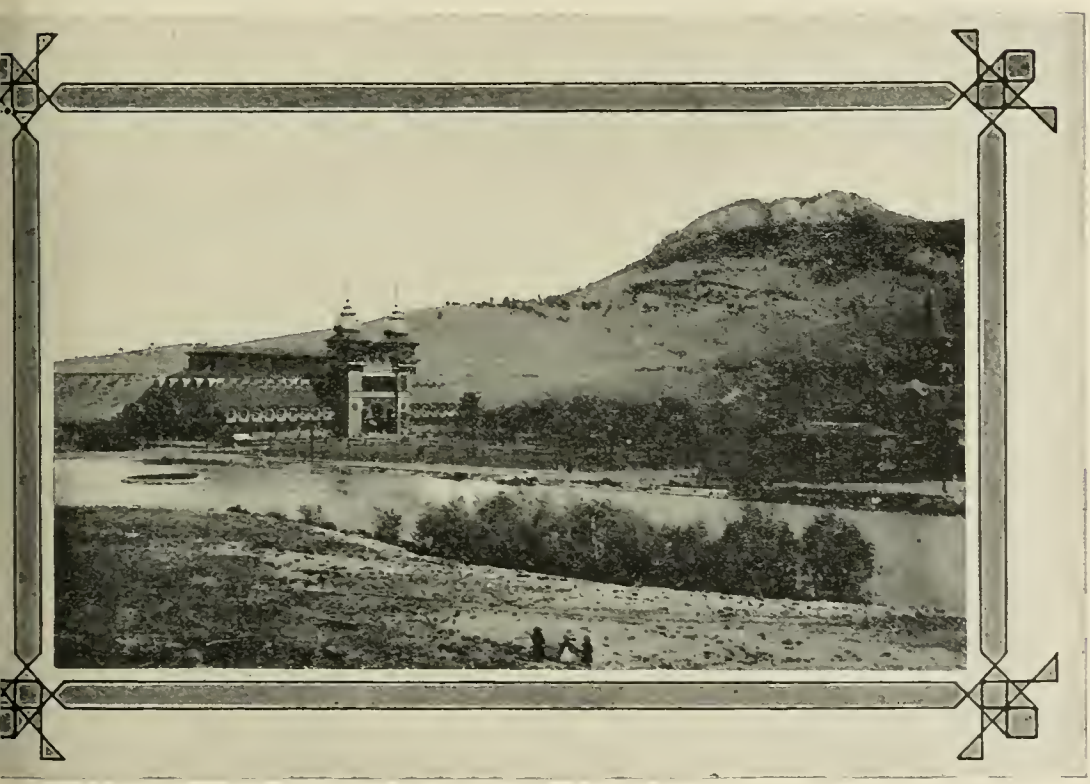
Such a soil warms up readily in the spring and is favorable to rapid plant growth. It is also easily worked and can be kept in good condition with a minimum of effort. From the nature of the vegetation at present upon the ground, I would judge the soil to be as good for agricultural purposes as valley land to be found in any part of the State. * * * I believe all kinds of small grains, such as wheat, oats, barley, rye, beans and peas, may be grown successfully and profitably. Of the hay and fodder crops, alfalfa seems to do particularly well. The soil, I believe, is particularly favorable for the growth of vegetables, such as potatoes, sugar beets and garden truck of various kinds."

Judging by what has been done in a small way on some of the farms,

small fruits, berries and apples also are well adapted to this county. From less than half an acre of strawberries, one Prickly Pear Valley farmer received net returns of over $500.

A word as to why the agricultural possibilities have heretofore been ignored: The older settlers were and still are stock raisers. Intensive farming has never appealed to them. In a few isolated spots enough has been done to demonstrate the future possibilities but it will remain for a new class of settlers to grasp them.

The only custom smelter in Montana is located at East Helena, four miles east of Helena. Railroad branches tap every important district, making



The Great Broadwater Natatorium.

it easy to ship ore for treatment and to get in supplies. Fuel costs are reduced to a minimum through the use of electric power from the hydro-electric plants, of which there are four in the county. These conditions make for very low operating expenses, which, in this specialized age is one-half of the game. With these preliminary observations we can do no better than to refer the capitalist to the remarks of State Mining Inspector William Walsh, who says:

"Lewis and Clark county has a great area of mineral territory, bearing gold, silver, lead and copper, with the former largely predominating, and offers attractive opportunities for the successful development of large and profitable producing mines. The county shows a vast improvement over

last year. While no very large discoveries can be recorded, some very profitable strikes were made in the vicinity surrounding the Spring Hill mine, close to Helena, where a great prophyry dike cuts the country and can be traced for a distance of four miles.

"Considerable development is going on in the Rimini district. This district merits more attention from the mining public than it has so far been accorded. In fact, when we view the many strongly mineralized districts that are to be found within the boundaries of this county we are at a loss to understand why prospecting has not been more thoroughly prosecuted. I am strongly of the belief that were a limited amount of capital judiciously expended in the development of these districts, as good mines as have been found in the State would be discovered. The Rimini district, situated 18 miles southwest from Helena, comprises a large mineral zone, the principal area lying along the side of Red Mountain. The east end of the mountain is cut by a great porphyry dike, on which a company in which James Breen, of Spokane, is the principal owner, has twenty-five patented claims, and though they are practically undeveloped the group has an excellent showing.

"Lewis and Clark county should, and will be, one of the richest and most productive of the mineral areas of Montana. All that is necessary is for capital to become interested in the proper development of its many hundreds of promising gold, silver and copper prospects."

Openings now exist in Helena for the establishment of manufacturing enterprises of various kinds such as were found in the East a quarter of a century ago. There are several reasons for this. At present the finished products practically all come from the East, but with the great development now ensuing in the Northwest and the growing population this will be changed. The man who starts a factory on a small scale now will have a great plant in a few years. Helena now supports a cracker and candy factory, a soap factory, two plants manufacturing spices, extracts and baking powder, two brick plants, two breweries, an iron foundry manufacturing mining machinery, and several other plants more local in their nature. Helena is already an important jobbing center in Montana, shipping to all points in the State on the Northern Pacific, Great Northern, Milwaukee, and Oregon Short Line railroads, as well as Wyoming, Idaho and Utah points.

Besides enjoying exceptional railroad facilities, cheap power for manufacturing purposes is to be had from the hydro-electric plants on the Missouri River, abundant water is available, and many raw products, such as wool, lumber, cattle, and many varieties of mineral are right at hand. It is true that labor is higher than in the East, but this is more than offset by the fact that raw products such as have been mentioned are first shipped east and then returned in their finished states. This double freight rate is greater than the difference between the eastern and western labor scale.

The opportunities of Lewis and Clark County have been but outlined. If there is one which appeals to you, seize it now.

LINCOLN COUNTY.

Lincoln County was created by act of the legislature in 1909, the lands forming it having been taken from Flathead County.

Rich as the new county of Lincoln is in timber and minerals, those who are looking into the future realize that its greatest wealth is yet to be created, and that is in the fruit industry. Throughout the new county runs the Kootenai River, one of the great rivers of Montana. The valley of this stream is not wide, generally, but there are places, as at Libby, where the valley widens and in a compact area are thousands of acres of the most magnificent fruit lands to be found in the Northwest. And all along the river to the international boundary line and to the line between Montana and Idaho, near Troy, are found lands which in the very near future will sell for hundreds of dollars an acre.

Most of these lands are yet covered with timber. Here and there the timber has been cut and there is some stump land which can be bought at

Libby, the County Seat of the New County of Lincoln.

reasonable prices. While it takes effort and money to get rid of stumps, when this is done there is no better land for fruit raising to be found in any section of the country.

The soil in Lincoln County is an ideal tree soil. Fruit experts and those who are directly connected with the fruit industry who have made an examination of the conditions existing along the Kootenai River and its tributaries, have invariably said that all the requisite conditions exist there to make the Kootenai Valley famous as a producer of fine fruits. The soil is right, the climate is right, the altitude is right and owing to the fact that from one end of the river to the other throughout this county there is a transcontinental railroad following its course, the question of transportation to market is a known quantity. On this latter score there is no other section of the country so favored in the matter of transportation facilities.

Tests have been made of the capabilities of the soil and climate for the past decade and over. Near Libby and on the banks of the Kootenai River

is an orchard which has been in bearing for nine years. During that time there never has been even a partial failure of crop. Every one of the nine years the fruit has been gathered from this orchard and brought to market. This record is probably as good a one as can be found any place.

And along the river from one end to the other similar tests have been made and all along its course are found orchards which show beyond question that the county is capable of producing the very best fruits. And in addition to the tests which have been made along the river, orchards have been planted practically throughout all portions of the county, some many miles from the river surrounded by timber, and in every instance these efforts have met with the greatest success.

All kinds of fruits are grown here. The apple takes a flavor and color which cannot be excelled by those localities which have now a world wide reputation along these lines. Plums, cherries and all other similar fruits do well. Small fruits thrive abundantly. Ideal areas are found for the

Placer Mine Returns.

cultivation of strawberries, raspberries and other small fruits and throughout the timbering and mining sections of the county is found a splendid market for all the fruit that up to this time in the history of the county has been produced.

Near Libby are grown Concord grapes. And these grapes are excellent. The tobacco plant thrives, water melons, cantaloupes, tomatoes, corn, cucumbers, etc., all do well, going to prove that the climate is here as well as the soil, not only for fruit raising purposes but for all other kinds of farming as well.

The Tobacco Plains district, of which Eureka is the chief trading point, has townships of land suitable for the raising of grains, vegetables and fruits. The fruit industry has not been followed to any extent, but the few orchards that have been set out are thrifty and are prolific bearers. Good land in this section can be bought at from $10 to $20 per acre.

Taking Lincoln County as a whole there is no other portion of the Northwest which has so many opportunities awaiting the fruit grower or the farmer.

In the southwestern portion of the county is the Libby mining district.

This district gives promise of developing into another Coeur d'Alenes. In the district is one mine, the Showshoe, which has produced between $900,000 and $1,000,000, and taking the entire district from one end to the other, a distance of about 40 miles, mineralogists and mining men who are familiar with both districts says that the Libby district is a counterpart, rock for rock, of the big silver-lead camp across the mountains in Idaho.

In addition to the silver-lead portion of the county, about 40 miles southeast from Libby is what is known as the West Fisher gold fields. This is a section approximately 10x2 miles in area and in that area are found a large number of low grade gold properties. Owing to the great distance from steel rails this section of the county has been idle since its discovery, notwithstanding the fact that much development work has been done. The advent of a railroad into that part of the county will open one of the greatest gold producing sections of Montana.

Within Lincoln County there are two known copper zones. One of these is located about five miles from Libby and near the north bank of the Kootenai River. It is known as the Rainy Creek district. The showings there are sufficiently large to warrant the belief that with the proper expenditure of money this district will become a large producer of copper.

The other copper district is located near the town of Eureka in the northern part of the county and near the international boundary line. Some very excellent copper ores have been found in that section and a great deal of development work has been done. It is considered by mining men one of the promising new copper fields of the State.

The Libby placer mines are among the oldest in Montana. These mines have been producing placer gold since the early sixties, the creek having been discovered during the Wild Horse gold excitement, when the outfitting for all this section of the Northwest was done at Walla Walla, Wash. Since that time there has never been a year which has not witnessed the production of gold along Libby creek, and great as has been the production during these years, from now on the production promises to be even greater. This condition obtains from the fact that during the past four years extensive hydraulic plants have been installed and the immense gravel bars along the stream which could not be worked in the old hand sluicing days will from now on be made to produce immense amounts of gold, as these bars are known to be exceedingly rich for this class of pay dirt.

The timber lands in Lincoln County are extensive. It is estimated by conservative timber men that there is standing within the county of Lincoln in the neighborhood of 20,000,000,000 feet of timber. The major portion of this is larch and the balance yellow pine, fir and other woods.

But very little of this timber has been cut. While other portions of Montana and other states have been denuded of their timber, this section of the State, on account of topography very largely, has been preserved in its primeval condition, and while other portions of the country have sold their timber lands for prices which are little better than the cost of cutting, when Lincoln County markets her timber it will get a price which will mean a good many times what the amount of timber meant to other communities in

the years that are gone.

There is an abundance of water throughout the county and in every gulch is a mountain stream. This will make irrigation, where needed, an easy proposition. However, up to this time in the history of the county all crops have been grown without irrigation.

The altitude of the low lands in the county will average about 2,000 feet. The winters are never severe.

All kinds of game and the greatest fishing grounds in the world are found,

Lincoln County Timber.

making it the premier county in the Northwest for this sort of outdoor life. And there is no more beautiful country to be found in Montana or any other state.

When Lincoln County was created on March 4, 1909, Libby was named as the temporary county seat. It is the twenty-eighth county in the State and starts in with an assessment roll of over $4,200,000.

MADISON COUNTY.

Madison county, situated in the southern part of the State, was the scene of a great part of the eventful history of Montana in pioneer days. In it is Alder Gulch where were discovered in 1863 gold placers which have produced more wealth than has been extracted from any similar area of ground in the world. Virginia City, the county seat, was the early territorial capital; and in this county mining, stock raising and farming—the three great industries of Montana—may be said to have started. As the placers became exhausted quartz mining became prominent and stock raising and farming made steady growths. To-day the county, though thinly settled, is made a very prosperous community by these industries. Placer gold is being recovered by means of dredges instead of by the crude old methods. Quartz mining continues to be a leading industry and gives promise of further growth. Stock raising is enriching those engaged in it, and the area of land under cultivation is increasing from year to year. Deposits of coal, iron, manganese and other

minerals, not worked at present, will be utilized when better transportation facilities are provided.

Madison County contains grand mountain ranges, long, rapid rivers and extensive and fertile valleys. It is watered by the Madison, Jefferson, Ruby, Red Rock, Beaverhead and Big Hole rivers and their numerous tributaries. The principal valleys are those through which these waters flow and bear the same name as the rivers. Ruby Valley extends from Home Park to Twin Bridges, is about 30 miles long, and from one to three miles wide. Beaverhead Valley is about 15 miles long by five wide. They unite near Twin Bridges. Other valleys are the Centennial, drained by the Red Rock River, in the extreme southern part of the county; the South Boulder in the extreme north and Willow Creek in the northeastern part, which has long been a rich agricultural section. The Madison Valley has suffered from lack of a railroad running through it. It is 36 miles long and five miles wide, including bench lands. Large streams descend into the valley from the mountains on either side. Norris is the gateway to the Madison Valley and McAllister, Meadow Creek, Ennis, Jeffers, Cameron and Lyons are postoffices. The yield of the farms at Meadow Creek, Jeffers and Cameron show how productive this extensive valley would become if it were transformed from a stock raising to a farming country. There is room for thousands of farmers in the Madison Valley between Norris and Lyons.

Produced in Madison County.

Madison County is mineralized from end to end, there being scarcely any part in which gold is not found. From the first discovery in Alder Gulch more than 40 years ago it led the State in the production of gold nearly every year until 1903. That the county held this position so long was due to the placers. These latter are becoming exhausted and the future will witness changed conditions as the opening and working of the quartz properties are carried on. Several companies are successfully working properties in the Pony and Virginia City districts and numerous leasers are making good money in the Sheridan, Twin Bridges and Silver Star districts.

In the Ruby Valley at the mouth of Alder Gulch is the largest dredging field yet developed in Montana. This dredging ground, which includes Alder Gulch itself, is owned by the Conrey Placer Mining Company, Charles Kammerer manager, postoffice address, Ruby, Montana, and consists of

about 800 acres extending from the town of Ruby to Adobetown. This ground is worked by three dredges operated by electric power. In actual operation the dredges proceed at the rate of about 15 feet each day. The yield of gold runs from 10 to 30 cents per cubic yard. By this modern system of gold recovery from four to six millions additional values is being extracted from this field which would otherwise lie idle and useless.

A Woolly Fellow.

The successful transmission of electrical power over long distances for use in mines and smelters shows what is possible in its use in industrial enterprises of all kinds. Part of the immense water power of the Madison River is being utilized by the Madison River Power Co. which has completely harnessed the Madison River and is generating and distributing over a system of high-potential transmission lines, covering the greater portion of the State, an average of 20,000 horse power the year round. The dam is located seven and one-half miles southeast of Norris on the lower Madison River, one and one-half miles below the head of the canyon. H. W. Turner is general manager of the company and M. E. Buck superintendent; the postoffice address is Norris, Montana. A steel tower line with a carrying capacity of 60,000 volts, strung with one-half inch copper cables, transmits the current direct to Anaconda and Butte, lighting both cities and supplying power to the mines, smelters and other industries. Parallel with the power line two pole lines are also maintained which insure continued and uninterrupted service to the state metropolis at all times. Other high tension lines connect the Madison with Ruby and its

A Madison County Orchard.

gold mines and dredges; with Three Forks and the Milwaukee shops; with Belgrade and its large flouring mills; with Bozeman and its interurban railway, brewery and other industries; with Livingston and the Northern Pacific shops, elevators and pumping station, which point at present is the terminus in eastern Montana, the Livingston to Billings extension being incomplete.

The soil throughout the county is generally fertile and large crops of grains, grasses, vegetables, etc., are yielded. Not much attention has been paid to growing fruit for market, although it does well. Mr. T. T. Black has twenty acres in strawberries in cultivation in the Jefferson Valley and has shipped them as far as the Atlantic Coast, receiving about 14 cents a quart for one shipment of 100,000 boxes. Oats, wheat, barley, rye and field peas are the principal crops. In 1908, 107 bushels of oats to the acre were grown on the Closton ranch near Twin Bridges. Quantities of oats are shipped to cereal factories in the East on account of its superior quality. Oats weigh from 40 to 44 pounds per bushel and sell from $1.15 to $1.50 per hundred weight. In the spring of 1909 they brought as much as $2.25. Spring wheat usually sells for $1.25 per hundred pounds, but this spring the price was nearly twice that figure. Potatoes sell at from 65 cents to $1.25 a hundred weight and the yield per acre is from 250 to 400 bushels. Alfalfa cuts from four to six tons to the acre and sells at from $4 to $5 per ton in the stack. Until recently most of the farming has been of irrigated land, the area of which will be much augmented by the construction of the Lima dam, at Red Rock Lakes, near Monida. It was completed May 1, 1909, and has the largest reservoir in southern Montana. It has been built by the Newell C. Knight Co. of Chicago, at a cost of about $200,000. The dam is 50 feet high, 200 feet broad at the bottom, will store about 65,000 acre-feet of water, and creates a lake ten miles long, two miles wide and covering more than 6,000 acres of land. The reservoir was built for the purpose of selling water to the ranchers below the dam, and will result in thousands of acres of bench lands along the Beaverhead being put under irrigation and cultivation between the dam and Twin Bridges.

Haying in Madison County.

However, dry farming has been tried with complete success in certain

places. One of the exhibits at the county fair in recent years that has created considerable interest and favorable comment was that of James Dawes who has a "dry land farm" six miles north of Norris. Mr. Dawes has been engaged in dry land farming in that locality for the past six years and has confined his experiments to raising a species of barley of the beardless variety grown extensively on the steppes of Russia. This barley which he had on exhibition differs considerably from the native grain, the heads and kernels both closely resembling wheat. Forty to fifty bushels of well developed grain can be raised from one acre on dry bench land without the use of water. The crop matures in about 90 days. Last year Mr. Dawes seeded 200 acres about April 15 and on July 15 the reapers were at work cutting it. The crop grows very rapidly coming through the ground from six to eight days from seeding. He used one-half bushel per acre in seeding and the yield averaged between 40 and 50 bushels per acre. Part of the ground seeded by Mr. Dawes was decidedly stony. He is very enthusiastic over his success in raising this barley as a dry land crop and is satisfied that it can be successfully grown in any part of the county. Mr. Dawes uses it for fattening sheep, cattle and hogs for the market.

The county has no town of more than 1,000 population. The principal places are Virginia City, the county seat, an important commercial and mining center; Pony, a mining town and trading point for the Willow Creek country; Sheridan, a pretty and thriving town surrounded by rich farm lands and near producing mines, and Twin Bridges. Situated at the head of the Jefferson Valley, near the confluence of the Ruby, Beaverhead and Big Hole rivers and at the outlet of the valleys of those rivers, Twin Bridges possesses a favorable location for growth in size and business importance and undoubtedly has a very bright future before it.

Main Street, Twin Bridges.

It is the home of the Madison County Fair for which the county commissioners appropriate $750 to $1,000 yearly. A three days' fair is held in September of each year and from the exhibit a display is made at the State Fair. In 1908 Madison's exhibit was awarded eight premiums for grain, vegetables and fruit at the State Fair held at Helena.

The State Orphans' Home of Montana is located at Twin Bridges and since its establishment in 1892 buildings have been added until now the

plant consists of a main building, four cottages, school building, auditorium, power plant and laundry, erected at a total cost of $110,000. For improvements during the years 1909-10 $18.500 have been appropriated and the estimated cost of maintenance for the two years is $63,000. The employees of the home number 22, and May 1, 1909, there were 61 inmates.

Twin Bridges wants and will encourage water works, electric light plant, steam laundry, excelsior factory, grain elevator, cereal food mill, creamery, beet sugar factory and farmers.

The price of both valley and bench lands in Madison County for which title may be obtained is said to be far below that of any other section of Montana. Improved land under irrigation ranges from $12.50 to $40 an acre. Bench land not under irrigation is worth from $7.50 to $12. The fact that Madison has always been looked upon as a mining county has retarded the advance in the price of farm land in proportion to lands of equal fertility and productiveness in other parts of the State.

MEAGHER COUNTY.

Meagher County, located in the central part of the State, was one of the original counties of the State of Montana. Its area has been much reduced, however, by the taking from it of lands to form new counties. It was named after General Thomas F. Meagher, sometime acting governor of Montana Territory, whose statue adorns the grounds of the State Capitol at Helena.

The Belt Range of mountains separates it from the valley of the Missouri on the west, the Little Belt Range from Fergus County on the east, and in the south are the Crazy Mountains. From these mountains flow many streams. The togopraphy gave it a certain degree of isolation in early days, which the inhabitants did not mind as they all prospered and many grew rich. This isolation was not broken into for many years. The first railroad to enter the county was the Montana Railroad, which came in from the west through Sixteen-Mile Canyon, stopped first at Castle and Leadboro, was afterward extended to Harlowton, and continued in later years to Lewistown, Fergus County. This road is now part of the main line of the Chicago, Milwaukee & Puget Sound Ry. and has been in great part rebuilt. The Billings & Northern branch of the Great Northern system crosses the county at its southeast corner. Surveys have been made for a northern extension of the Milwaukee, the line running past White Sulphur Springs and down Smith River, with the supposed purpose of finding a route to Great Falls, and there is talk of a southern extension to Big Timber and beyond. The Northern Pacific Ry. is now constructing a branch

Winter Wheat.

line up Shields River from Livingston to Meyersburg, a short extension of which would bring it to Dorsey.

Until a few years ago Meagher County was almost exclusively the home of stockmen whose herds of cattle and flocks of sheep pastured on the rich grasses of the valley and bench lands. Fine ranch homes were established in the valleys and such crops as were needed for home consumption grown on irrigated land. Where there were no cheap means of getting products of the soil to market there was no incentive to produce them in quantities greater than the local demand required, especially when the stock industry was so extremely profitable. Live stock transported themselves to the railroad and wool was of a value to justify freighting long distances. Conditions are changed now. The large herds and flocks are disappearing or moving back from the good farming lands on which they have been pasturing, and in certain neighborhoods cabins of homesteaders dot the landscape as far as the eye can reach.

On the Road to the Wool Warehouse.

But hundreds of thousands of acres of unoccupied public land are still open for settlement, and with a view of attracting investors many large tracts of land in private ownership are being divided into lots to suit their requirements. Nearly all the rights to water belong to the owners of large tracts from whom they will have to be purchased. Land with water rights may be bought at prices ranging from $10 to $50 per acre.

By the application of the modern methods of soil cultivation in a region of light rainfall—the dry land farming system—to vast areas of bench lands in Meagher County, there is no reason to doubt that they can be made to produce great yields of winter wheat and other crops.

The principal valleys are those of the Smith River in the western and northern and the Musselshell in the southern part. Upper Smith River Valley is about 50 miles long by 10 or 12 miles wide. The principal industries are stock raising and wool growing. The soil is fertile and hay is the chief crop. Seven tons of alsike clover is the estimate of what has been cut per acre. The building of a railroad through this section would stimulate the production of grain and other crops in this valley which is now remote from a market. So far as practiced farming has been very successful, the yield of grain being usually good and the quality superior. A yield of 72 bushels per acre of spring wheat is reported. Oats raised here have been shipped to Minneapolis for seed.

The Musselshell Valley has been the scene of great industrial activity and development in many lines during the past few years. Small villages have become thriving towns and flourishing new towns have sprung up where before there was not even a village. Some of the best farms and

farm lands in the county are in this valley, which has long been noted for its fine large ranches. Here are now may homesteaders and small land owners.

In 1906 Meagher County sent an exhibit to the State Fair at Helena and took first premiums on wheat, oats, barley, timothy, alsike, alfalfa and red clover; twenty-one first and second premiums.

The stock industry will continue to be important, but has ceased to be practically the only industry. There are hundreds of thousands of sheep and Dorsey and Harlowton are great wool shipping points. As a finishing ground for live stock Meagher County claims to have no equal. Stock fed on its nutritious pastures and forage and watered from the pure mountain streams quickly take on weight, become of prime quality and sell at top prices in the markets.

The mineral wealth of the county seems to be great. In the hills east of White Sulphur Springs and elsewhere are large deposits of iron. Near Copperopolis and in the Sixteen-Mile country are copper ores of high grade. There are rocks containing zinc. Coal exists at numerous places. Gold has been found in the Belt Mountains. Castle was once a famous silver and lead camp and has, it is said, immense bodies of ore awaiting the miner's pick. The ore is in demand for its fluxing qualities.

None of the towns exceed 1,000 in population.

White Sulphur Springs, the county seat, is a well built, prosperous town, prettily located on the east side of Smith River Valley, about 18 miles from Dorsey, the nearest railroad station. Every line of business is represented. The famous White Sulphur Springs are within the town; the water is about 110 degrees in temperature and contains wonderful medicinal properties which are beneficial in many diseases. These springs will be resorted to by many invalids when their merits become more fully known and easier means of reaching them are provided.

White Sulphur Springs.

Martinsdale, an important trading point and progressive town on the Musselshell, is in a rich farming country and is the shipping point for ores from the copper district not far distant. Twodot is another thriving village in the same valley being surrounded by lands of great fertility and is the supply point for a considerable section. Dorsey is the nearest railroad point to the Smith River country on the north and the Shields River country on the south and handles a great deal of freight. Many homeseekers are availing themselves of the opportunities this neighborhood presents. Judith Gap is a new town in the extreme southeastern part of the county. It is a division point of the Billings & Northern railroad which has established round houses and shops there and provides a large pay-roll.

The county around it offers fine opportunities and is being settled up rapidly.

Harlowton, on the Musselshell River where the road to Lewistown branches off from the main line of the Milwaukee road, has a population of about 1,000 and is the busiest town in the county. It is the distributing point for a large area of territory and ships quantities of wool and other products. It is one of the principal towns on the coast extension of the Milwaukee system and has a considerable railroad pay-roll. It is an enterprising place which has grown rapidly in the past three years, has fine churches, schools and public buildings, brick and stone buildings, a good hotel, a newspaper, bank and many business establishments. Brick and cement industries have been established and contracts have been awarded for the construction of a large flour mill. A bill for the location of a United States land office has been offered in Congress and citizens of the town expect it to become a law before long.

At the Railway Station at Harlowton

This county, once the home of wild game and the Indian, is being transformed into grain fields and prosperous hamlets. Every laudable enterprise is encouraged, market afforded for all products of the soil, climatic conditions unexcelled, the winters not unusually severe nor the summers too long, hot or dry, and the average precipitation about eighteen inches, the rains falling when they are most needed by growing crops.

Game of all kinds abound in the mountains and this county has been favored by nature in having within its confines three picturesque mountians, Little Belts, Castle and Crazy.

With all of the natural resources, including mining, stock growing, agriculture, horticulture, building material such as stone, timber, cement, etc., water power facilities, lowest tax levy and the richest per capita in the State, Meagher County respectfully presents her claims to the intending homeseeker and investor.

MISSOULA COUNTY.

Missoula County lying in the western part of Montana adjoining Idaho is one of the most important and populous of the counties of the Treasure State. Nature has provided a fertile soil, a delightful climate and grand scenery and its many advantages and opportunities have drawn together an energetic, progressive class of citizens devoted to their locality and enthusiastic, with ample reason, on what already has been achieved and on the brilliant promise of its future. It is, indeed, a garden spot reveling in fruits and flowers, magnificent trees and balmy atmosphere, copiously watered, with mountain and plain offering abundant reward to well directed industry.

What You May See as You Drive Along the Road.

The opening this year of the Flathead Indian Reservation, a large part of which is in the county, is an event which has aroused general interest throughout the country. The President issued a proclamation relating to the opening and designated Missoula, Montana, as a place to register by those desiring to make homestead entries of Flathead lands. The time for registering was from July 15 to August 5, 1909. All applications received before August 9 were thoroughly mixed and envelopes selected therefrom indiscriminately, one at a time, and the applications therein numbered as selected. The numbers thus assigned control the order in which entries may be made. For instance, the person whose application is numbered

Twin Lakes on the Montana-Idaho Divide, Bitter Root Range.

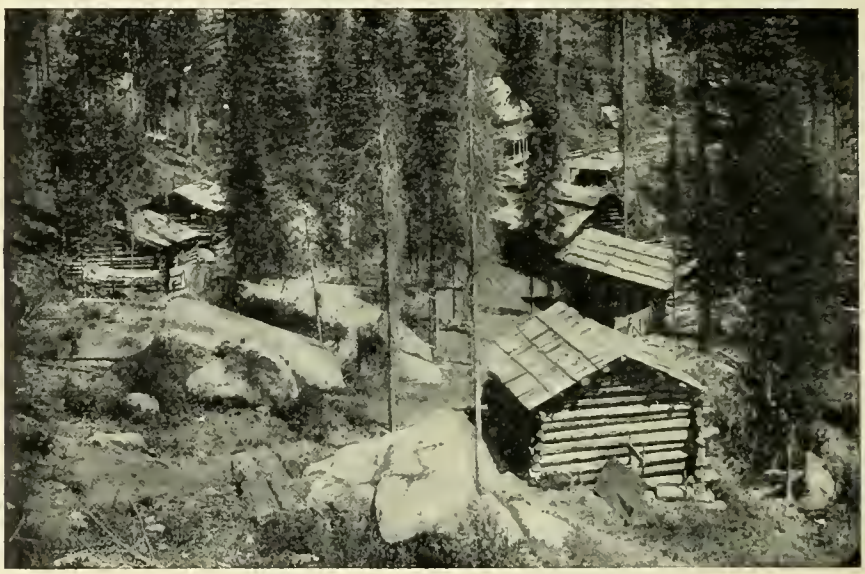
"one" will be given the first choice of all lands subject to entry on the reservation for which the application is presented; the person to whom number "two" is assigned will be given the second choice, and so on. As soon as numbers were assigned in this manner, notices giving the numbers assigned were mailed to the addresses given in the applications for registration, and in cases where applications were presented by agents, notices were mailed to both the agents and the persons by whom they were appointed. Any person qualified to make either an original, a second or an additional homestead entry was entitled to register for these lands. Registration did not cost anything except the notary's fee. Those who were successful in securing the right to enter lands will not be required to make actual entry until April 1, 1910, or later, according to number, and the intervening period may be used in examining the land.

Commissioners appointed by the Government have classified the lands subject to entry on the Flathead Reservation as follows: 40,229 acres of agricultural lands of the first class, 71,091 acres as agricultural lands of the second class, and 336,189 acres as grazing land. These lands have been appraised at from $1.25 to $7 an acre. Portions of the lands thus classified on the Flathead Reservation have been withdrawn from entry under the Reclamation Act and will not be subject to entry under this opening.

Missoula County Apples at the Spokane Apple Show.

At the time of making entry a payment of one-third of the appraised value of the land must be made and the remainder may be paid in five equal annual installments. Residence must begin within six months after the date on which the entry is made and continued, with cultivation, until a patent has been earned, either by five years' residence and cultivation and the payment of the installments annually, or by fourteen months' actual and continuous residence and cultivation and the payment of all unpaid purchase money.

Missoula is a gateway to the Flathead Reservation and is prepared to take care of the thousands who will desire to go into the reservation for the purpose of examining the country. A request addressed to the Secretary of the Chamber of Commerce, Missoula, Montana, for information on the



Lolo Hot Springs on Lolo Creek.

subject will bring a pamphlet on the Flathead Reservation and country which will prove both instructive and interesting.

The mineral wealth of Missoula County is one of its principal resources as will appear from the following excerpt from the report of the Montana State Mine Inspector: "The mineral areas of Missoula are both extensive and attractive, offering as good opportunities to the prospector and to the capitalist as can be found in any of the mineral districts of the Rocky Mountain region." It is not necessary to name the many properties being worked or the numberless prospects that are now being explored, but the Chamber of Commerce of Missoula will be glad to furnish information on the subject. Mining is a legitimate vocation and none need go wrong in making investments in that industry.

With the exception of the limited amount of seepage lands on the mountain sides, Missoula County depends on irrigation. The irrigation projects are principally of a private character, that is to say, the actual owners of water rights are also the actual land owners, and these owners

for convenience and economy in operation incorporate under the State laws thus insuring to each individual his just equity in the corporation of which he is a member. There are several thousand acres of rich land lying in the immediate vicinity of Missoula offering a splendid opportunity for eastern capital to install an irrigation system. Also in the foothills are opportunities for farming without irrigation on the dry farming system.

Missoula County is noted for its steady and uninterrupted crops, oats, wheat, clover, timothy and alfalfa hay returning immense tonnage each year. This is made possible by the many private irrigation projects now in existence. The average yield of oats is from 70 to 100 bushels per acre weighing 42 pounds to the bushel; of wheat from 40 to 60 bushels per acre, timothy hay, 2 to 4 tons per acre; of clover hay, 3 to 5 tons per acre. Potatoes average from 200 to 600 bushels to the acre, and net from 75 cents to $1.50 per hundred pounds. Hay nets all the way from $8 to $18 per ton. The opportunities for agricultural pursuits are unsurpassed in Missoula County.

The county claims to stand first and foremost in the State in horticultural pursuits; and in this industry not only compares favorably to but in many instances excels the much advertised districts of Washington and Oregon. The principal horticultural crops are apples and transcendent crabs. The latter have proven exceedingly profitable owing to the clean fruit produced and the great demand for it in the eastern markets. Perhaps one of the best apples grown to-day and which received unusual favorable comment from the national judges at the recent National Apple Show held in Spokane is the McIntosh Red. This variety of apple is becoming famous in the eastern markets, and the present demand far exceeds the present production. From an acre of ten-year-old McIntosh apple trees one should easily earn $1,000 per annum. Transcendent crabs have earned $1,200 per acre from ten-year-old trees. Ten-year-old pear orchards yield $1,200 an acre. Small fruits are very prolific on the irrigated lands of Missoula County, strawberries earning $500 an acre, blackberries $400 per acre, raspberries $400 per acre and currants $300 per acre. There is practically no limit to the quantity of root crops that can be grown on an acre of this fertile irrigated land; for instance onions will average $500 per acre, celery will average more than $1,000 per

Weighted With Apples.

acre, and beets of all kinds and carrots are large producers. There are many small orchard tracts and a population somewhat dense, for Montana, which fact insures many community comforts which are lacking in a sparsely settled region.

The business of dairying has received very little attention, a fact for which it is difficult to find a satisfactory reason. Feed is not high in comparison and dairy products are in great demand. In fact the demand far exceeds the production. Butter seldom goes lower than 30 cents per pound. There is a good field in Missoula County for investigation by the experienced creamery operator. There is also a constant demand for eggs and chickens at prices profitable to the producer.

The city of Missoula is the county seat of Missoula County, claiming

One of the Big Industries.

a population of approximately 17,000, is up-to-date and progressive in every particular and is the metropolis of Western Montana. It is the hub and distributing point for four exceedingly fertile and productive valleys, and in addition for all of Western Montana and for a part of Idaho. It is located on two transcontinental railway lines and a third is said to be arranging for a right of way at the present writing. Branch lines go out from the city in many directions, and it is now predicted that in a very few years the city of Missoula will have more and better shipping facilities than some of the now admitted centers of the Northwest. The city of Missoula supports

three substantial banking institutions with deposits exceeding $7,000,000.

Missoula has a gravity water system which brings pure mountain spring water, which is pronounced chemically pure, into the city. The city is lighted by electricity and gas. Electricity is generated at an immense power dam in the Missoula river six miles east of the city, and there are dozens of similar power locations within a radius of six miles from the city which are available.

Missoula is known as the "Garden City" of Montana and it deserves the title; it is a city of beautiful homes, owned and occupied by a high-minded and contented people. There are churches of all Christian denominations, and the pulpits are occupied by men of the highest learning. The several churches are well attended and arrangements are now being made to enlarge some and to build others so that the rapidly increasing church population can be properly accommodated.

The University of Montana is located at Missoula and in all the West there can be found no more attractive educational institution, nor one that does more thorough and conscientious work. It is a splendid institution, splendidly managed.

Of the many opportunities offered in Missoula County for manufacturing enterprises the manufacture of wood pulp seems to stand first and foremost. Experiments recently made by the United States Forestry Service clearly indicate that this industry has a glowing opportunity in Missoula County. There is on exhibition at the Chamber of Commerce pulp made from several kinds of timber which grow in profusion on the mountains of the county, and with so much power and clear water at hand such an industry would seem to be assured of success from the very beginning. The best grade of bituminous coal is one of the immediate possibilities in the near vicinity of the city of Missoula. Diamond drilling is being pursued every day with flattering results.

PARK COUNTY.

Park is one of the southern tier of counties whose industries are stock raising, mining and farming. It enjoys a fine climate and is splendidly watered. The Yellowstone River emerging from the Yellowstone National Park runs in a northerly direction to Livingston, where it begins its eastward course. There are many important streams emptying into the Yellowstone above Livingston, and a few miles east of that city it receives the waters of the Shields River, its principal tributary within the county. The vast water power of the Yellowstone has not yet been utilized.

On each side of the Upper Yellowstone are foothills rising gradually to the mountain ranges which enclose the valley. In the mountains are quantities of timber and many mineral districts. The scenery is uncommonly beautiful and the county is noted for the excellence of the fishing and hunting.

Park County has numerous thermal springs which are largely frequented and the waters of which are beneficial in the treatment of many diseases. These springs are well provided with accommodations for the health seeker

and are in convenient distance from the railroad. The principal ones are Hunter's Hot Springs near Springdale, Chico Hot Springs near Emigrant, and Electric Hot Springs at Electric.

The live stock industry including horses, cattle and sheep is very important in Park County and some very fine animals are raised there. The wild grasses are among the most nutritious in the world and the cultivated grasses yield abundantly. The county has reason to be proud of the excellence of its cattle. Cattle exhibited by Mr. George J. Allen of Park County took the first prize at the St. Paul Exposition. Mr. Allen also took first prize at Chicago, but his greatest achievement was the winning of the special prize of $550 at the great Chicago Stock Show.

Some sheep of the highest grades are to be found at some of the ranches and the sheep business has been a very profitable one.

Park County has twenty imported stallions and raises some of the finest draft horses in the country. Many of them have sold for as much as $400.

The mining industry promises to grow into very great importance. The minerals are coal, gold, silver, copper, lead, scheelite and platinum. In early days many thousand dollars of placer gold were taken from Emigrant Gulch and there are other deposits in the county that have not yet yielded up their treasures. Near Emigrant are located many more or less developed quartz claims. Jardine on Bear Creek is in a district richly mineralized and some of the mines have been large producers. The valuable mineral, scheelite, is found here. A few miles off is Crevasse, which should produce gold in large quantities when necessary development work is done and milling facilities provided. Large bodies of rock of the kind required to make cement have been found. In the immediate vicinity of Livingston are deposits of fire clay.

Near Electric Hot Springs on the Yellowstone River.

Perhaps the greatest mineral district in Park County and one of the most promising in the State is the region around Cooke City. This district is situated in the mountain range in which rise the East Fork of the Yellowstone, the Boulder, the Stillwater and Clark's Fork of the Yellowstone. It has been known for many years and considerable development work and mining of ores has been done, as well as the reduction of ores on a small scale. Rocks bearing gold, silver, copper and lead in paying quantities have been discovered in many claims; but the lack of transportation facilities has prevented this camp from assuming the importance to which its wealth

in minerals seems to entitle it. The need is for mills and smelters to reduce the ores economically as the distance from the railroad is so great that few ores can stand the cost of freighting by team to a point of shipment to a smelter, though some have done so. There is now a prospect that a railroad will be built into Cooke and that the mineral output of the State will soon be largely increased by the yield from this camp.

Park County has many coal mines. The Montana Coal & Coke Co., with mines at Aldridge and coke ovens at Electric, have been in operation for many years. Other producing mines are on Trail Creek, where a very fine quality of domestic coal is mined and shipped by the Yellowstone Park railroad, a small road connecting with the Northern Pacific at Chesnut. The pay-rolls of the coal mines aggregate large sums every month.

A Farmstead.

The agricultural industry of Park County is growing very rapidly in importance. The principal valleys are those of the Yellowstone and Shields River. Where practicable, lands have been irrigated by private enterprise and it is thought the area of land under ditch can be largely increased if capital is provided for the construction of costly ditches or if the Government should undertake the task. There are many acres which yield good crops without irrigation and dry land farming is being extended. The soil of Park County is generally very fertile and some large yields of the standard crops have been made. The fair held annually at Livingston brings together a large collection of grain, grasses, vegetables and fruits that would surprise one coming from a less favored country.

Callender Avenue, Livingston.

Alfalfa is the principal hay crop, some 96,000 tons being produced yearly. Oats, wheat, barley and all root crops yield abundantly. Truck farmers

and market gardeners realize splendid profits and there is money to be made in dairying, in hog raising and in the poultry business.

Fruit growing is in it infancy, though about 11,000 fruit trees were set out in 1908.

One of the best farming regions in Montana is the Shields River Valley in the northern part of Park County. This extensive valley has been producing large crops for years, considering the number of acres cultivated, but has been without railroad facilities so that it has not been profitable to cultivate the lands too distant from market to justify the hauling of grain. This fact accounts for the delay in the development of the upper part of the valley; but the lack of transportation facilities is soon to be

Oats, 76 Bushels to the Acre and 44 Pounds to the Bushel.

remedied by the Northern Pacific Ry. which is now building a branch up Shields River Valley, which will be completed in October to Meyersburg, 48 miles distant from Livingston. Elevators are being built at Clyde Park and the Shields River Valley promises to become one of the greatest grain producing regions in Montana.

Little effort has been made to advertise the resources of Park County and lands may be bought at prices lower than less productive lands sell for in many portions of the West.

Livingston, the county seat, is a thriving town which has increased in population from 2,785 in 1900 to 6,000 in 1907. The machine shops of the Northern Pacific Ry. located at Livingston are the largest between Brainerd, Minn., and Tacoma, Wash., the monthly pay-roll amounting to $80,000. In the whole of the United States probably in no town of like population is there to be found a railroad station building so elegant and costly as that of the Northern Pacific at Livingston. Here the branch line to the Yellowstone National Park starts, terminating at Gardiner, the entrance to the Park. Ten thousand tourists pass through Livingston every year on their way to the Park.

Livingston has fine public buildings, churches, a school system not

excelled in the State, electric lights, streets parked and with cement sidewalks. It has many pretty private residences; there is a Carnegie library, and ground has been bought for the site of a Federal building which is to be erected in 1910 at a cost of $100,000. It is the trading point of a large territory. It is the town with the pay-roll.

POWELL COUNTY.

One of the original counties of the Territory of Montana was Deer Lodge, having the town of Deer Lodge as the county seat, and from it have been formed four of the present counties, Silver Bow, Deer Lodge, Granite and Powell. Within the boundaries of Powell County are much of the best lands the old county contained and it has retained as its county seat Deer Lodge, declared by a dweller in it "the fairest of Montana's towns, the Mecca of old timers, the home cot of its native sons and daughters, the city of homes and intelligence—beautiful Deer Lodge." The town of Deer Lodge played an important part in the early history of Montana.

In 1858, James Stuart, Granville Stuart, Rezin Anderson, Thomas Adams, E. H. Burr and John H. Powell made at Gold Creek, in what is now Powell County, the discovery of placer gold which it is claimed led to the settlement of Montana. Though unable to work the placer at that time they returned and began work in 1862 and the news of their discovery led to further prospecting resulting in the discoveries at Bannack and Alder Gulch which caused such an influx of people into the country that it became necessary to create a new territory and Montana was born.

Although only about one-half the size of former Deer Lodge County, Powell County still measures 90 miles north and south and about 40 miles in its extreme width. Within its 2,000 or more square miles are rugged mountain peaks, towering 10,500 feet above sea level; broad, fertile valleys and outlying bench lands, covered with the nutritious grasses of Montana, and township after township of heavy forest timber, besides numerous rivers and streams furnishing water for irrigation and being the home of the choicest of fish. The southern and central portions are devoted to agriculture and grazing; the northern end is heavily timbered.

On Dry Cottonwood, running from the mountains of the east side to the Deer Lodge River, two companies are mining sapphires and placer gold. The Variegated Sapphire Co. has been operating a mining dredge on their property, while the American Jewelers' Co. now has partly finished a dredge to be worked on their ground. The principal product of this gulch is sapphires, which have been pronounced by experts among the best in

hardness and brilliancy. The stones are of different colors, and an occasional one found requires an adept to tell it from a diamond. This gem field lies about 12 miles southeast of Deer Lodge and 16 miles from Anaconda on the east. It is claimed the former company saved enough placer gold as a by-product to pay all expenses of operating the dredge.

At the old camp of Pioneer, about 18 miles northwest of Deer Lodge, extensive operations are being carried on by Kohrs & Bielenberg, who have acquired most of the valuable ground in that district. Water is obtained from Rock Creek Lake through a large mining ditch owned by that company.

The valley of the Deer Lodge River, with its tributaries, occupies the southern part and it is practically all under control by residents. There are some large holdings, but there are also many ranchers scattered throughout the valley. Hay is the main crop, the larger part of the wheat is fed at home to cattle and sheep that during the summer are ranged on the foothills and parks of the mountains. The city of Deer Lodge is the center of this region. The city now claims a population of about 1,400 but it is confidently expected that within the next two years this will have been increased to 5,000. The principal shops of the Puget Sound extension of the Milwaukee road have been built here and are now being equipped with machinery. The railroad operations will mean employment to fully 1,000 men when in full operation at this point.

The Montana penitentiary is located at Deer Lodge.

The valley of the Little Blackfoot joins that of Deer Lodge at Garrison and though of very much less extent yet with its tributaries it forms an extensive farming and grazing country. Elliston, a town of 300 or 400 people, is the principal center of this valley and has considerable mining interests contributary to it. It is expected that a new branch of the Northern Pacific will leave the main line here, run north to the Big Blackfoot, thence down the river to Bonner. Avon is a small but thriving town, some nine miles west of Elliston. Garrison, at the junction of the main line and the Butte branch of the Northern Pacific Ry., owes existence to the needs of the railroad in its transference of freight at this point.

Farther north the valley of Nevada Creek is entered. This is one of the best grass regions in this part of Montana, the thick heavy sward of either native or cultivated grasses showing adaptability of soil as well as congenial climatic conditions. The people living in this valley are among the most prosperous of the county. Helmville, the center of this community, has about 350 inhabitants and does a thriving business. It is connected by daily stage with the Northern Pacific Ry. at Drummond, but the people are looking forward with pleasant anticipation to the building of the Blackfoot branch line, which will traverse this valley.

The Big Blackfoot River is the second largest stream and drains the northern portion by its tributaries, the North Fork, Montour and Shanley creeks, and Clearwater River. The valleys of these streams have a vast amount of arable land that makes the finest meadow to be found anywhere, and a large amount of stock is cared for in this region. As one goes north the timber becomes larger and thicker.

A Ranch With Some of Its Assets.

Ovando, a small hamlet but an active business place, receives the trade of this country, besides being the outfitting point for hunters going into one of the few remaining large game districts of the West. A number of experienced guides reside here and are kept busy each fall by the numerous parties going in. This place is also connected by daily stage via Helmville with the Northern Pacific at Drummond.

In the extreme north end the Government has included about 400 square miles in the Lewis and Clark Forest Reserve. These forests and streams of northern Powell County abound in large and small game and abundance of such choice fish as live in Montana's streams. This region is nearly 30 miles from the railroad as the crow flies, and nearly double that distance by any feasible route, and yet is the annual resort of a large number of those who long for a taste of the wild. Practically unexplored and wholly undeveloped, it must remain for years to come a part of the primeval forest, and so possessing a fascination for such as long for "a lodge in some vast wilderness."

The resources of so varied an area as Powell County contains must necessarily be largely permanent and conducive to the steady maintenance, if not the growth, of the communities within its borders, whether those be of town or country.

A stranger might be pardoned who doubted the statement that the hardier fruits could be successfully grown at an altitude of 4,500 feet, at which elevation the majority of the land in this county lies; but the fact that they do grow will silence the doubt. There are quite a few successful apple and cherry growers who use good judgment in selecting proper sites for their enterprises, and their success will doubtless stimulate others to like effort. Already the majority of the farmers are planting trees to produce fruits for home use, and as one success leads to another it may be expected that such fruits will soon be produced in abundance right in our county. The small fruits produce wonderfully where the smallest amount of care is taken, and even when neglected in cultivation nature deals generously. One example is given of an orchard near Gold Creek of 3,300 apple trees which began to bear in the year 1908, and from which a most bountiful harvest of apples was gathered.

All kinds of vegetables flourish and seem to attain much nearer perfection than in lower altitudes and warmer temperatures. The markets are supplied to a considerable extent with green vegetables from the surrounding country, and the most delicious corn and string beans come from home gardens.

Dairying is quite prominent as an industry, especially in Deer Lodge and Nevada valleys. A few of the farmers are devoting their whole attention to this branch of agriculture, and are finding that it pays well, as the closeness of the markets of Helena, Butte and Anaconda gives them the advantage over those who have longer shipments. All cultivated grasses thrive and are taking the place of the native grasses, both because of their longer seasons of growth and the larger yield.

Alfalfa which is now attracting so much attention as a forage plant has been grown in the valley for years, and there seems no difficulty in

securing "a stand" even on new ground. The other clovers flourish and yield heavily. Because of these conditions the dairying industry will become more and more the one that will attract the farmers with small holdings. No apprehension need be felt that this region has reached its limit of maintenance of the herds and flocks already here or to come, for while the range is becoming restricted yet the greater yield of these forage plants will furnish enough to more than compensate for the narrowing of the grazing area.

The growing of grain is restricted to the individual needs of the farmers, not because profitable crops cannot be grown, but because, all things considered, hay is the more profitable crop, and so immense areas are given to the growth of that staple and the "hay harvest" is by all odds the main occupation from mid-summer to early autumn. Sheep and cattle are driven to these sources of supply to be wintered, either as being fitted for the market or to be turned out on the range in the spring.

It is a truth, however, that notwithstanding these profitable and varied industries, by far the larger area will be devoted to cattle and sheep. Much of the bench land and all of the foot-hills and mountain parks are incapable of cultivation, and their profitable use will be grazing. To utilize these men will buy and lease large quantities of land and turn sheep and cattle onto them, or else with predatory bands will seek to remain on the open. The crowding has already been felt, and only by longer feeding and shorter grazing seasons can the situation be successfully met.

The assessor's books disclose the fact that within the area of Powell County during the year 1908 there were fed and grazed 4,510 horses and mules, valued at $173,680; 15,765 head of cattle, valued at $251,002; and 61,835 sheep, valued at $185,505; making the total number of live stock maintained upon the soil of this county 82,020 and valued at $610,187, the actual number and value being probably considerably more than the returns show. These numbers and values are fairly distributed throughout the county and one can scarcely conceive of want or famine entering such a domain.

Of the million and a quarter acres of land contained in Powell County there are 547,015 listed for assessment and valued at $1,321,704. The total number of acres of mining land under patent are 13,857; total value of same, $37,919; value of improvements on same, $18,005. The total assessed value of the county is $4,153,030, divided as follows: Real estate and improvements, $1,876,473; personal property, $1,118,784; railroad property, $1,166,773.

No census has been taken since the segregation, but the population of the county, based on careful estimates, is not far from 5,500. With the valuation above, this would give an average assessed valuation of $750 to each man, woman and child in the county, surely a fair inheritance.

Such is an imperfect picture of a municipality in the heart of the Rocky Mountains, containing all things necessary to self-sustenance, its wealth fairly well distributed, its population evenly scattered over its area, dominated

by no individual or corporate influences, having common or similar interests to foster and protect, with genial climate and fertile soil.

Were one to moralize for the benefit of those interested, this quaint couplet might be quoted:

"With peace and plenty, home and comfort,
Why pester God for more?"

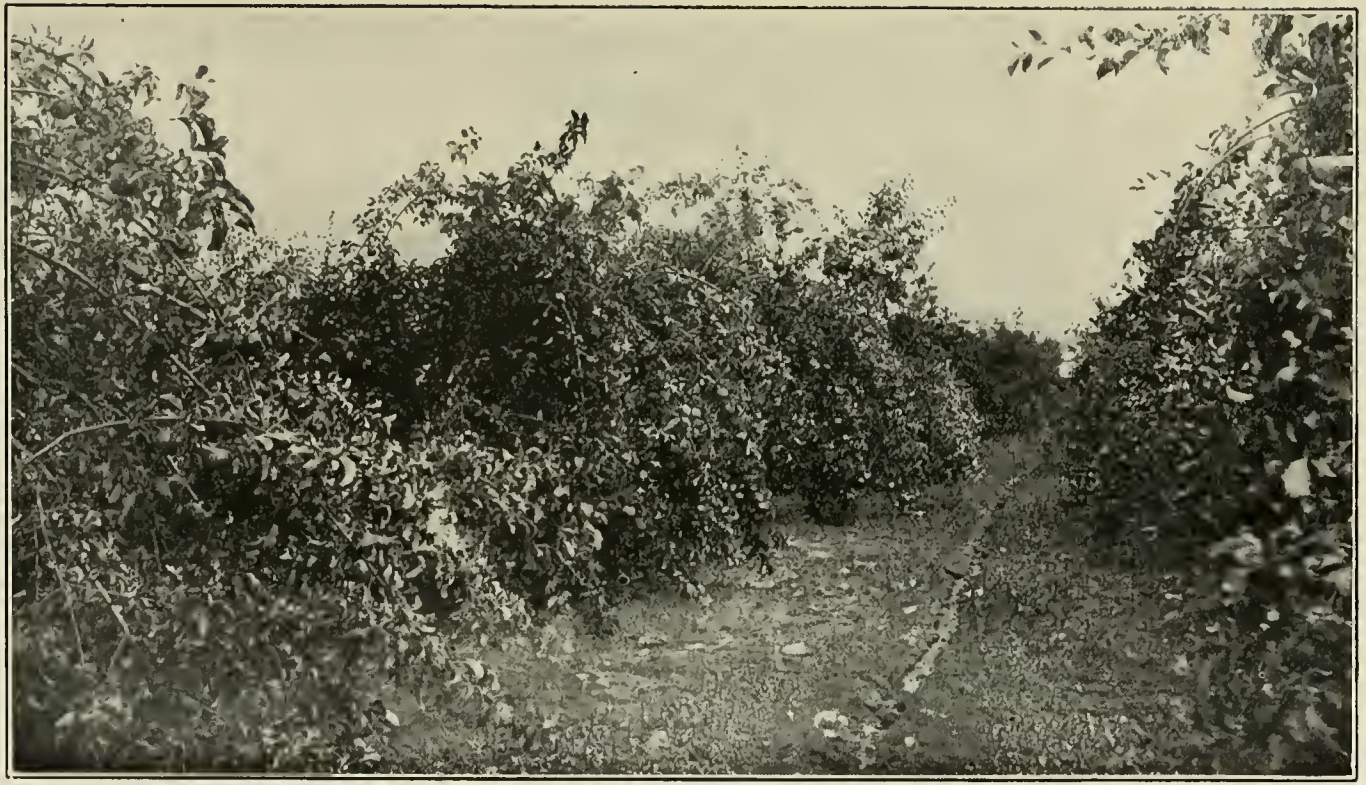
RAVALLI COUNTY.

Ravalli County, located in the western end of Montana, embraces practically all of the famous Bitter Root Valley. The identity of the county, however, except as a political sub-division, is lost in that of the valley, for the fame of the Bitter Root has spread as far as the fame of Montana. Many things have contributed to make its reputation. It was selected by Marcus Daly, the Montana Copper King, as the location for the most highly improved farm in the West. Eastern capital has advertised it widely and persistently. Nature, in endowing it with matchless scenic beauty, has made it a Mecca for the summer tourist, and at home it is known as "The Garden Spot of Montana,"—the "Favorite Child of the State," so to speak.

The great extent of the State gives a wide variety of climate in Montana, and the Bitter Root Valley, because of its complete mountain protection, offers different climatic conditions from any other section. The rigors of winter are not felt, the mercury rarely falling below zero. The winters are unusually open, and the work of plowing for the spring crops is often begun in February. The summers are ideal. The nights are seldom without cooling breezes and the days are never excessively hot.

Is It Any Wonder That Montana Is Attractive to Farmers?

It is the extent of its products and the unequalled productivity of its soil that have given the Bitter Root Valley its fame. Until the last few years it was almost exclusively an agricultural district, raising astonishing yields of hay, wheat and oats. Fruit raising was purely a side line, many farmers having small orchards for their own supply. But there is a change. Horticulture is rapidly becoming the leading industry. With the tremendous profits to be realized from growing apples no one can afford to grow grain on land that can be converted into orchards. Hundreds of thousands of trees have been planted the last two years, and the process of changing the



A Ravalli County Orchard.

valley into a succession of orchards and small tracts under a system of intensive farming will continue. Formerly the valley was content to be known as a wonderfully fertile agricultural section; now it heralds to the world the fact that it is "The Home of the McIntosh Red Apple."

"To those who have never seen Bitter Root apples, they are certainly a revelation," says a report of the Montana Bureau of Agriculture, Labor and Industry. "Large, luscious, brilliant, perfect in form and color, not a worm hole or a blemish in a hundred thousand boxes, they are the most marketable product on earth. * * * For a distance of nearly one hundred miles there is a succession of well-tilled farms and magnificent orchards, the production of which, both in quantity and quality, cannot be excelled. * * * Climatic and soil conditions have made this valley an ideal orchard site, the

A Scene on the Bitter Root Stock Farm.

water supply guaranteeing immense and never-failing crops remarkable for crispness, color, flavor and beauty.

"A visit to this valley during the fruit season is well worth while, and will reveal some wonderful sights. It is not uncommon to see very small trees so loaded with fruit that it becomes necessary to prop the limbs or place a tripod of rails above it to which the branches are tied. The yield at times is phenomenal. Fruit has been grown for thirty years; the better methods of culture and variety adapted to the soil and climate have been learned, and fruit growing is now one of the most important industries in country."

The proudest and most profitable product of the Bitter Root Valley is the McIntosh Red apple. It could almost have originated here, so perfect does it grow. Because of its high color and its distinctive flavor it is in demand all over the world, and commands the very highest market price. It is particularly adapted to the valley and can never be produced in quantities to glut the market, for no other section can produce the apple in so high a

state of excellence. From 130 trees near Hamilton, in the fall of 1907, a profit of $1,750 was realized. This is an exceptional yield, but proves that a profit of from $300 to $500 an acre is not exceptional.

The Transcendent crab apple and the Bartlett pear are two strong competitors of the McIntosh Red and can be produced with almost equal profit. All varieties of apples grow in abundance, but only the leading varieties have been mentioned. Plums, peaches, strawberries, blackberries, raspberries, gooseberries, currants, tomatoes, and all other kinds of small fruits grow in profusion. Commercial crops of watermelons and cantaloupes are also raised and yield large returns. Experiments in growing tobacco show that the plant can be grown in luxuriance, and some exhibits of tobacco grown in the Bitter Root may be seen at the State Fair at Helena this fall.

Six Tons Alfalfa to the Acre in Two Cuttings.

Government statistics show that since 1895 the annual production of apples of the United States has decreased nearly 75 per cent. In 1895 60,540,000 barrels were grown, while in 1907 only 18,000,000 barrels were produced. This should allay the fear frequently expressed by ill-informed people that the large number of new orchards in the West will find no market for their products when they come into bearing. It should be remembered, too, that consumption has greatly increased in the past fifteen years.

The Bitter Root leads the world in its production of oats per acre. Highest award was made to John F. Wood of Victor last fall by the Farmers' Seed Co. of Faribault, Minn., the prize being a check for $200. From 31 pounds of seed supplied by the company he grew 186 bushels and 25 pounds of oats, the largest yield of record. Wheat and barley likewise prove the surprising productivity of the soil. Potatoes and all garden vegetables grow splendidly.

The towns of Ravalli County are Hamilton, the county seat and largest town, Stevensville, Victor, Corvallis and Darby. Hamilton is a modern town of 3,000 people situated in the heart of the fruit raising belt of the valley. It has the best and most up-to-date public buildings, hotels, mercantile stores and dwellings of any town of its size in the Northwest; one of the largest saw and planing mills west of St. Paul, two telephone exchanges, two newspapers, flour mill, oatmeal factory, splendid city water and electric light systems, accredited high and grammar schools, seven churches,

public library, two state banks and one national bank, and many other improvements.

Stevensville has about 1,500 population and a substantial volume of business. It has modern city improvements, including electric lights, city water and telephone systems. Victor, Corvallis and Darby are all growing towns of 500 to 800 population, and each does a good volume of business.

From a ten-acre tract in the Bitter Root Valley planted to an apple orchard, and properly cared for, the investor can secure a livelihood, a life of independence and a competence. Yearly profits of $300 an acre can be realized and the land will increase rapidly in value until it reaches the high mark set in other western fruit valleys, including the Wenatchee and Yakima valleys of Washington. This is one of the big inducements offered locators in this region—the fact that land values are bound to increase. At the present time fruit land can be bought in a raw state from $25 to $75 per acre, and improved orchard land at $100 to $200 per acre. This is less than half what is paid for the same kind of land in Washington and Oregon fruit valleys. Freedom from insects and an almost complete absence of frost during the bearing season make crop failures almost unknown, while an unsupplied home market, and a fruit association which will handle his crops, insure to the investor prompt returns for his year's toil.

Great development is going on in the Bitter Root Valley and an immense amount of capital is being spent there. The valley is reached now by a branch line of the Northern Pacific Ry. which maintains two passenger trains and one freight train daily. An electric line connecting Hamilton with Missoula and Butte has been surveyed and will be constructed as soon as right of way privileges are secured. One of the largest private irrigation projects in the world, that of the Bitter Root Valley Irrigation Co., has been built for a distance of nearly forty miles and during the present year will be extended about twenty miles. This project has already reclaimed 15,000 acres and 25,000 acres lie under the extension which has been contracted for. This land was formerly worthless raw land, but is now being planted to orchards and placed on the market at prices ranging from $100 to $200 an acre.

ROSEBUD COUNTY.

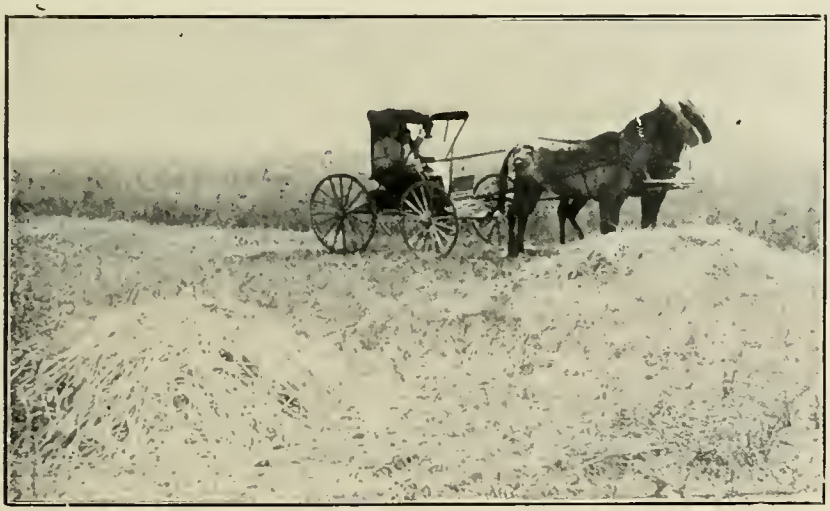
The youngest of the counties in the Yellowstone Valley is Rosebud which was formed in 1901 from the western part of Custer. It contains approximately 7,383 square miles and never having had a census its population cannot be approximated. However, it is known that many settlers have recently gone into Rosebud County and that it is rapidly increasing in population.

The climate and soil are such as are common to other parts of the Yellowstone Valley and much that has been written of the other counties is applicable to Rosebud County. Stock raising has been the leading industry but is making way, in places, for the farmer. The principal production of grain and hay has been on irrigated lands in the valleys where the same large yields are had as in other counties of that section. The principal valley is that of the Yellowstone, which traverses the county from west to east. Other streams having valleys of greater or less size are Tongue River, the

Rosebud and the Big Horn on the extreme western line. The valley of the Rosebud River is one hundred miles long by one mile wide and quantities of hay are produced there. Tongue River Valley is fifty miles long by one mile wide. The Yellowstone Valley from the mouth of the Big Horn to Myers station is twelve miles long by one and one-half miles wide, and from Forsyth to Hathaway about twenty-five miles long and two miles wide. This is where the big Edwards ditch is located. Extensive agricultural areas will be greatly benefited by the completion of irrigation projects now under way or projected.

Potatoes.

There are few recent figures as to crop yields available, but it has been said that wheat will average about 40 bushels and oats 60 bushels an acre.



Alfalfa Crop.

Hon. Tom Alexander raised 100 bushels of wheat to the acre and 600 bushels of corn from 10 acres in 1905.

Potatoes will average about 200 bushels an acre and are of very superior quality. All the root crops do extremely well.

Corn flourishes and the size of the ears and stalks would astonish those who do not think of Montana as a corn growing state.

Alfalfa makes great yields and is a very profitable crop. Some of the land is specially adapted for the growing of sugar beets. All vegetables that grow in the Yellowstone Valley grow in this county.

The raising of fruit as an industry is a new business but gives promise of great development as the yield is large and the quality excellent.

The early cultivation of the soil was in the valleys and generally in association with stock raising. Farmers have begun to come in and it has been learned that good crops can be grown without irrigating the soil. A sub-station of the Montana Agricultural Experiment Station has been established six miles east of Forsyth on the farm of Mr. L. T. Pemberton. The soil in the plot is a loam mixed with a percentage of gravel some bars coming near the surface. This land was broken and cropped in 1901 and remained without cultivation until the spring of 1906, when it was plowed and put into condition for the plot tests. "The returns," says Bulletin 74 of the Montana Agricultural Experiment Station, page 76, "indicate profitable possibilities for the dry lands in this part of the State." Some of the results given on page 78 of the same publication giving average records from the Rosebud Experiment Farm for the years that it has been in operation are surprising, the yields being so great. For instance the

Old Indian Trails Near Saddle Butte, Rosebud Valley.

average yield of Turkey Red wheat was 50.14 bushels; of fall rye, 31.82; of California barley, 34.38; of oats, 40.03; of flax, 13.09, and of potatoes, 160.70.

The unceded portion of the Crow Reservation is about 30 by 70 miles in area and the Indians do some farming and raise a great deal of stock. They have built a good irrigating canal and have also a good flour mill.

The Cheyenne Indian Reservation is about 30 miles square and the agency is at Lame Deer. An industrial and agricultural fair conducted by the Indians is an interesting feature of the county.

There is much vacant public land in Rosebud county and some irrigated land that can be bought at moderate prices. The resources of the county are such as to insure to it a large growth in population and wealth in the next few years and intending settlers would do well to investigate the opportunities it offers.

Forsyth, the county seat, is the principal town, and is an important trading point. Rosebud is another thriving town.

SANDERS COUNTY.

Sanders County was formerly a part of Missoula County, and began its separate existence on March 1, 1906, with a population of about 3,000 and an assessed valuation of $2,250,000. Since then its population has nearly doubled, and the assessed value of its property amounts to nearly $4,000,000. It lies in the extreme western part of the State, and embraces an area of about 2,000,000 acres of which about 500,000 acres is agricultural land, and 1,500,000 acres is mountainous, timbered and grazing. The agricultural land lies mostly in the eastern part, in the Plains Valley, and in the valleys of the Little Bitter Root and Flathead rivers and Camas Prairie, in what, until recently, was the Flathead Indian Reservation. The Clark's Fork of the Columbia River, formed by the junction of the Flathead and Missoula rivers in the southeastern part of the county, runs through it in a northwesterly direction, and there are many thousands of acres of fertile farming land adjacent to this stream and on the bench lands between it and the

In the Plains Valley.

mountains on either side. The Clark's Fork is a broad and rapid stream and will furnish an unlimited amount of power for use in manufacturing enterprises, there being numerous sites available for power sites along its banks. The Northern Pacific Ry. follows the Flathead River and the Clark's Fork across the county, and has a branch running from Paradise up the Missoula River, connecting with the Coeur d'Alene branch at St. Regis.

Sanders County has the same fertile soil that characterizes other parts of Montana, and everything can be produced here that grows in other parts of the State, and in as large quantities. Having the lowest altitude in the State, and being protected on all sides by lofty mountains, it has the mildest climate. Its springs come earlier and its summers last longer and, therefore, varieties of fruit, vegetables, etc., can be grown here that cannot be grown elsewhere in the State. The average rainfall is about 16 inches, most of which falls during the growing season. As a rule good crops are raised without irrigation, although there is an abundant water supply for irrigating purposes from the numerous small streams that flow from the mountains.

and most of the lands in the Clark's Fork Valley can be watered from that stream, with the expenditure of sufficient capital.

The soil in the bottom lands is usually a fine, deep, sandy loam, while on the bench lands a rich gravelly loam is found. Common yields per acre are from 3 to 4 tons of timothy, 4 to 5 of red clover and 6 to 8 of alfalfa; 40 to 50 bushels of wheat, 60 to 100 bushels of oats, 60 to 70 bushels of barley, 600 bushels of potatoes, and vegetables and fruits in proportion. No finer strawberries are grown anywhere and they find a ready sale in

Non-Irrigated Wheat Field

the mining camps at $3.70 per crate. The agricultural products of the county find a ready market in all the large cities of the State, but the principal market is in the mining camps of the Coeur d'Alene country, lying immediately south, and having a direct railroad connection by way of the Paradise-St. Regis cut-off. The prices obtained range from 80 cents to $1 for wheat per bushel, from $1.25 to $1.50 per hundred for oats or barley, from $10 to $25 per ton for hay, from $1 to $1.25 per hundred for potatoes, from 2 to 2½ cents per pound for onions and from $1 to $1.25 per box for apples.

It is principally as a dairying and fruit growing country that Sanders County will become famous, however. The finest kind of pasturage is to be found along the valley of the Clark's Fork and the streams that flow into it, and the mild climate will make it easy and inexpensive to raise a fine grade of milch cattle there. It will not be long before some men of enterprise will see the opportunities that are offered in this respect, and those who take advantage of them will earn good rewards.

The conditions of fruit growing are substantially similar to those in the Bitter Root and Missoula valleys, except that the milder climate of Sanders County makes it possible, it is claimed, to grow good varieties that can not be raised in those localities. Such apples as the Northern Spy, the Baldwin, and the Spitzenberg grow to perfection here and no finer specimens of the famous McIntosh Red can be found anywhere than are produced in the Plains Valley. All other kinds of fruit grow in profusion in all the valleys of the county; each succeeding year sees new orchards

started, and a few years hence will find Sanders County among the leading fruit growing localities in the State.

The mountains, which cover about three-fourths of the area of the county, are covered with billions of feet of the finest kind of timber, and lumbering has been a leading industry since the Northern Pacific Ry. was built through it in 1883. Pine predominates, but there is also an abundance of fir, spruce and tamarack, and in the western part a great deal of cedar is found. Much of the forested land is included with the Cabinet National Forest, and the timber may be cut, with the approval of the forest officials of the Government, on very reasonable terms and conditions.

Much of the timbered land, when cleared, will make the finest kind of farming land.

Sanders County lies within the great Coeur d'Alene mineral belt and while no great mines have as yet been developed within its boundaries many splendid prospects have been discovered and there is no doubt that there are deposits of mineral within the county which, when sufficient work has been done on them, will produce as richly as the mines of the big mining camps just across the range. Around Trout Creek and White Pine exceedingly rich deposits of lead, silver and copper are known to exist, but considerable capital will be needed to develop them. When this capital is used there, however, it will pay rich returns, and some day there will surely be big mining camps at these places. In fact, all through the mountains in the county promising prospects are being developed as well as the means of the discoverers will permit. When the necessary time, enterprise and capital have been expended on many of these, large fortunes in mineral wealth will be taken from them. The geologic formation of the country and its location with reference to the rich mines of the Coeur d'Alene country, considered in connection with the discoveries that have already been made, demonstrate conclusively that there are immense deposits of gold, silver, copper and lead within the county.

Logging in Winter.

Plains, the metropolis, and the only incorporated town in the county, is the center of a large agricultural area known as the Plains Valley. It is the front door to the western part of the Flathead Indian Reservation, for which it is also the supply and shipping point. It is bound, therefore, to increase immensely in importance as soon as the reservation is settled up, which will be in the spring of 1910. Its present population is about 800. It has a first-class water supply system, a national bank, a grist mill, four excellent general stores, one of which is one of the largest and best equipped in Western Montana, four hotels, four church organizations—Catholic, Christian, Congregationalist and Methodist-Episcopal—each of which has its own church edifice, two weekly newspapers, doctors, lawyers, etc. The secret and fraternal orders are well represented. Work is just beginning on a new school house to cost $17,000 and an up-to-date electric light and

A Money-Maker Started.

power plant is about to be installed. Plains also has a progressive business men's organization known as the Plains Valley Commercial Club.

Thompson Falls, the county seat, is a thriving town with a population of about 600. It has a $10,000 court house, a first-class hotel, a new school house of brick that cost $17,000 a Methodist Episcopal church organization owning its own church building, and a fine system of water works. The falls, just below town, furnish a splendid opportunity for the development of almost unlimited water power, and work has recently been commenced to make use of it for operating an extensive electric light and power plant. A few miles southwest of the town, on Prospect Creek, several mines are being developed that will eventually produce good values in gold, silver and copper.

Paradise, situated at the confluence of the Flathead and Missoula rivers, a division point of the Northern Pacific Ry., and also the junction point

where the St. Regis cut-off to the Coeur d'Alene branch meets the main line, is where the Northern Pacific Ry. Co. has a tie-preserving plant, machine shops, boiler shops, round houses, etc. The population of about 400 consists largely of employees of the railway company and their families. There are several excellent stores here, and the railway company has recently placed there a large hotel equipped with modern improvements. A new school house is about to be built to cost $7,000.

Heron, in the extreme west end of the county, is a thriving community

In the Clark's Fork Valley of the Columbia.

of about fifty families, the center of a fertile agricultural country, which will eventually produce some of the finest fruit and dairy products in the State. Near Plains but on the Flathead Reservation are the Camas Hot Springs, famous for their curative properties, and which the Government has placed in a reservation. As a place of resort for invalids they may become a rival to the Hot Springs of Arkansas.

Quinn's Hot Springs, situated on the Missoula River about four miles above Paradise and adjacent to the railroad, are much similar to those at Camas. Excellent hotel and bathing accommodations are to be had there.

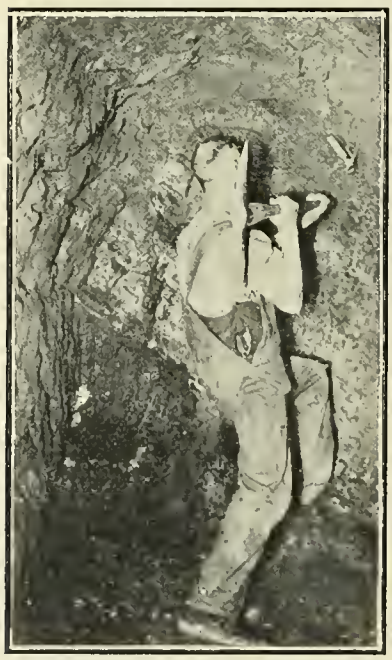
Sanders County has hardly begun to develop her natural resources and, therefore, opportunities can be found here that no longer exist in older communities. As yet man has done but little here in producing wealth but there is no limit to what man can do in the way of creating wealth from the raw material furnished by nature. The county stands to-day, in point of development, where Missoula and Ravalli counties stood twenty years ago, and the growth of those counties shows what the future holds for Sanders County, for it has the same fertile soil, splendid forests and rich mineral deposits that have made those counties the prosperous and progressive communities that they are. At the present time, in July, 1909, the people of Sanders county number only about 5,000. There is room within her borders for at least 50,000 to have comfortable homes, and

opportunities for all to acquire a competence if they have average energy and enterprise. All that Sanders County needs to place her among the most desirable in the State for the homeseeker and the wealth-producer are capital and a large population of earnest, industrious and enterprising men and women.

SILVER BOW COUNTY.

Silver Bow, the smallest county but one in the State, having an area of only 800 square miles, is the richest and most populous. Its prosperity is derived from the marvellous richness of the copper mines of Butte, and mining is the industry overshadowing all others. The area devoted to agriculture is small and no great increase in the quantity of cultivated land may be expected. Butte is practically Silver Bow County, although there are mining districts some distance from the city which warrant further prospecting and development.

Butte has been known as "The Greatest Mining Camp On Earth," but it is much more than that; it is the largest city of Montana and the most populous city in the Northwest between St. Paul and Spokane. Apart from its mining interests it is of importance for its manufactures and as a financial, railroad, commercial and distributing center. Statistics showing the mineral output of the State, most of which Butte has supplied, will be found on another page; and this article will be confined to the following description of Butte of to-day, furnished by the Butte Business Men's Association, P. J. Brophy, President, J. T. O'Brien, Secretary:



A Miner at Work.

Butte is a growing town. It emerged from the mining camp stage years ago. It has become a modern, progressive city, secure in its present, confident of its future. When heap roasting of ore was abandoned more than a decade ago, the city took a step forward; when, more recently, its smelters were closed or so improved as to eliminate the smoke nuisance, it gave assurance of a permanency that bore immediate fruit. People who long ago had entertained the idea that Butte was an admirable place in which to acquire wealth, but no place to live longer than the time required to accumulate it, began to see things differently. With the improvement of physical conditions, they began to buy and to build modern homes. Property values rose to a point that seemed high when compared with prices that prevailed during the period when Butte was nothing more than a mining camp. They are going higher. Last year when the depression in the copper industry the world

Butte—A Business Street in "The Greatest Mining Camp on Earth"

over affected Butte adversely, real estate values did not change. Speculators and investors on the watch for bargains in realty waited in vain. To-day values of Butte real estate are as stable and as high as at any time in the city's history.

The solving of the smoke problem has made Butte a home city. Lawns now flourish where once was barren ground; flowers and shrubbery are adding to the attractiveness of many homes. While in no sense a rival of its neighbors in flowers or foliage, it is less barren, less ugly, than in the days when no attention was paid to yard decorations.

Butte's location is fortunate. High above the pretty valley it overlooks, the city is surrounded by magnificent mountain ranges. From almost every door step the view is inspiring. Distant snow-covered summits look down upon the place the year around. In the city itself, pavements and permanent

Walkerville.

walks, grading and other improvements, either planned or in course of construction, are effecting a transformation from the Butte of old to the modern city. Butte may in time become a town beautiful.

With all the frills and niceties of a modern city, Butte yet will remain strong, rugged, unique, a town with a character, a place different from any other in the world. These features which, in combination, make Butte, afford the visitor entertainment out of the ordinary. No American knows his country until he has seen Butte; no tourist can visit the greatest mining city in the world without finding it worth while. Butte, also, is a city of peculiar interest to the investor. Certainly no similar area in America has made so many fortunes as Butte. There still are opportunities; the fortunes yet to come will exceed the treasure already given up.

Copper is the basis of Butte's prosperity. Naturally and economically this means stability and steady growth. Gold and silver camps are fleeting.

Sooner or later the precious metals play out and the communities dependent upon such mines are left without support. Copper leads are as permanent as the hills themselves. In older lands than America copper mines, worked centuries ago, are still producing. The deepest mines in the world are copper mines.

In 1884 Butte's daily output of ore was 1,875 tons. Now its mines hoist 15,000 tons of ore every twenty-four hours. They employ directly more than 10,000 men at the highest wages paid that class of work in the world. Indirectly they give employment to more than that many in addition.

Butte produces 300,000,000 pounds of copper each year. In 1906, when the average price of copper was in excess of 19 cents, the copper output of the mines of Butte brought $57,805,000. The district produces annually about 11,000,000 fine ounces of silver and 65,000 fine ounces of gold. Butte

Pavilion at Columbia Gardens.

produced 67,000,000 pounds of copper in 1885; in 1895, 190,000,000 pounds, and in 1905, thus far the banner year, 319,000,000 pounds. Butte mines produce 30 per cent of the copper mined in the United States, 24¼ per cent of the copper produced in North America, and 17 per cent of the copper of the world. It mines more silver than any other district in America. Only one other camp in the world produces as much of the white metal as Butte. Gold, which with silver is a by-product of the copper mines, is mined in larger amounts in Butte than anywhere else in the State. Butte has only begun to mine. Development of a comparatively recent date shows richer values at greater depth than existed on upper levels. The great Anaconda vein at 2,400 feet is richer in the red metal than in the zone above, a significant thing, as it indicates commercial values at depths not yet reached

in the mines of Butte. Although Butte's ore tonnage is enormous, it may be said that the development of the mines more than keeps pace with production. There is sufficient ore blocked out to run many of the great mines at their present capacity for years without further development, although vast sums are spent annually in sinking, prospecting and other work of this character. The underground workings of Butte's mines aggregate 900 miles. The aggregate depth of the shafts alone equals many miles. The deepest shaft in the district is that of the High Ore mine, which is down 2,800 feet, vertical depth.

Butte mines consume annually 65,000,000 feet of lumber and 225,000 stulls, and contain 1,000,000,000 feet of timber. They use 4,000,000 pounds of giant powder every twelve months. The city of Butte, including the fuel used by the mines, smelters, blocks and for domestic purposes, burns annually 547,500 tons of coal.

The miners of the Butte district receive in wages more than $1,250,000 a month. In addition, the mines support an army of smelter men, railroad men, mechanics and others. The combined pay-rolls make Butte the greatest wage-receiving city of its population in the world.

Butte is not wholly devoted to mining, although that industry forms the basis of its industrial life. There is a diversity of manufacturing in the city not generally understood by Butte itself. Butte factories turn out everything from macaroni to mattresses, from candy to coffins and an infinite variety between.

Butte is a consumer as well as producer. With the price of copper a third less than in 1906, nearly as much money is paid out for wages and supplies as in the period when the red metal was above 20. The chief difference is in the size of the dividends distributed. Butte eats as regularly and as often one year as another. It is a town where money circulates.

From a railroad point of view, Butte is the cross-roads of the Northwest. On an average throughout the year Butte receives or sends out 14,000 loaded cars each month. These figures are official, being compiled from the statistics of the Montana Demurrage Bureau. In addition there should be included 2,000 cars a month of freight exempt from the demurrage rules. They do not include the thousands of cars that pass through Butte destined for other points. Of these 16,000 cars of freight that either originate or are received in Butte every month, more than 1,000 cars are of merchandise.

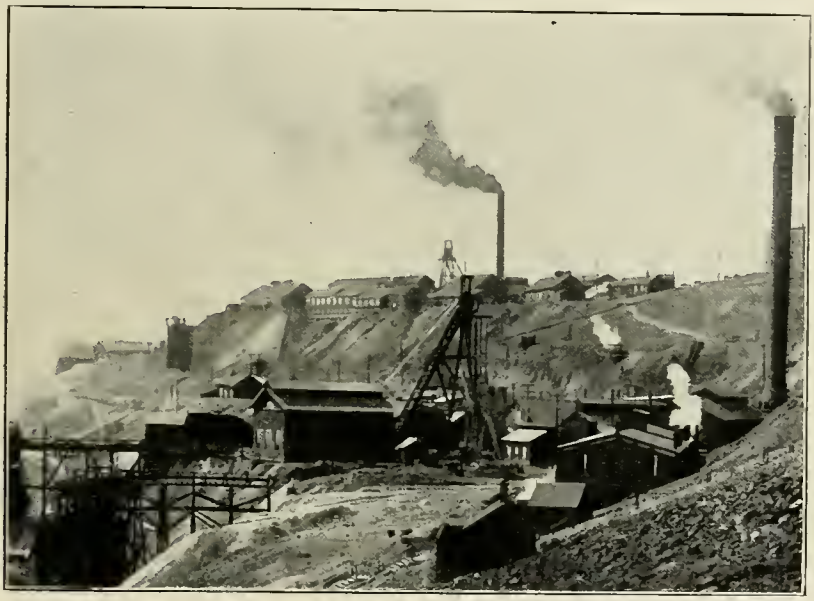
Butte receives and ships 192,000 carloads of freight every twelve months. Supposing the average freight train has thirty-five cars, Butte then yearly receives or sends out 5,485 trains. The demurrage association officers say the average car loaded in or received at Butte contains forty-five tons. That means that Butte handles annually over steam roads 8,640,000 tons or 17,280,000,000 pounds of freight, most of which is ore.

No other city in the world of like population can begin to show such a railroad tonnage. Seattle, Tacoma and Spokane, with their enormous lumber traffic, do not together equal, or nearly equal it.

For every hour of every day, through every week of the month and every month of the year, Butte pays more than $1,000 to the railroads for

freight. Butte contributes more than $9,000,000 annually to the railroads for freight. A city that pays more than $24,000 a day as freight charges is a market town.

Butte banks have a combined capital and surplus of more than $2,000,000 and deposits approximating $14,000,000. Few cities, in proportion to population, are as strong financially as the metropolis of Montana. There has been only one bank failure in Butte's history, and that was of an institution wrecked several years ago by men who made only the pretense of maintaining a legitimate institution. During the panic of 1907, when banks in other states were hard pressed, Butte banks were on a cash basis. Not once did they resort to clearing house certificates or other temporary substitutes for money, nor did they employ other than the ordinary methods of business during that trying period. This was the more extraordinary



Anaconda Hill.

when it is considered that Butte's immense pay-rolls required heavy disbursements of cash.

Butte's future is not entirely dependent upon its copper mines, but if it were still its permanency would be assured. Copper veins go to depths not yet attained by man and, measured by the years, Anaconda Hill has only begun to yield up its treasures.

Under conditions not always favorable, Butte has grown steadily until it has outstripped all of its rivals. It will continue to grow. Growth means assimilation, increased trade, business in which the whole State and country will share. Each year adds to its importance as a business center. It must continue to be the market town of a rich and constantly growing territory.

In the foregoing I have refrained from giving even an approximate estimate of the consuming capacity of Butte of the products of the various producing sections of the State, through the momentary absence of definite

figures, applying to such commodities as grain, hay, vegetables, beef, mutton, pork, poultry, eggs, butter, fruit, flour, etc., the volume of which necessary to the sustenance of its 75,000 people is a very important factor in the success of the agricultural industry of the State, the importance of which is augmented by the fact that our city with its 5,800 feet of altitude produces not any of these staple necessaries for itself and is, therefore, in no sense a competitor of any other community but is a generous patron of all.

Our people, representing the throbbing heart of Montana, are natur proud of the leadership which their thrift, diligence and unceasing energy have given to their home town, are none the less proud of their State's progress and possibilities, and of their ability to contribute to the upbuilding of the commonwealth in its every material feature; holding a place second to none in loyalty to its institutions, pride in its prosperity, sustained by the stimulus which confidence gives as applied to its certain and glorious destiny.

SWEET GRASS COUNTY.

From west to east the Yellowstone River runs nearly through the center of Sweet Grass County. From the river the land rises to the south to a range of high mountains and on the north to a range which forms the divide between the Yellowstone and the Musselshell.

There are tracts of good merchantable timber in the southern part of the county which is in a forest reserve, and in this region is a highly mineralized district containing ores of gold, silver, lead and copper. Coal has also been found.

The county is extremely well watered and there are many valleys. The principal agricultural areas are the Yellowstone Valley about 55 miles long by two miles wide; the valleys of the Boulder, West Boulder, Big Timber, Sweet Grass, American Fork and Otter Creek which are of varying length and width. The soil of the valleys is of great fertility.

Private irrigation ditches have brought water on most of the valley lands where the chief crop is hay, raised in connection with stock growing.

Winter Feeding Scene.

The fall of the streams has rendered irrigation practicable at a comparatively small cost in all the valleys. Alfalfa is, perhaps, the chief crop and yields about four tons per acre in two cuttings. Sometimes a third cutting is made and the yield per acre increased. It is a very profitable crop. Oats are a leading crop and make large yields as a rule. Wheat has done very well where tried but has not been raised to a large extent. The soil is well adapted for the growth of wheat, oats, barley, rye, sugar beets and all varieties of vegetables. Apples, plums, cherries and all small fruits are successfully grown.

Live stock has been the chief industry of the county and horses, cattle and sheep flourish on the native grasses which are abundant and nutritious.

Sheep are owned in large numbers and Big Timber is a great wool shipping point.

The process of converting the open range and stock ranches into small farms has made a beginning. The movement will grow as the advantages

Head Gate of the Glass Bros. Land Company's Irrigation Canal.

of the county in soil, climate, wood and water become known. There are many acres adapted for dry farming.

Under the Carey Act, Glass Brothers of Big Timber have reclaimed 28,000 acres of land in the northern part of the county and are now offering it for sale with perpetual water right on long time and easy payments. This project will result in a large number of agricultural settlers coming into Sweet Grass County. The same firm have begun the reclamation of 40,000 acres additional lands.

A profitable industry is the fattening of lambs for market. They are

A Sweet Grass County Ranch.

fed a ration of alfalfa and a little grain and put on flesh in a gratifying manner. There are great possibilities for the expansion of this business as alfalfa, grain and lambs are all local products and the fattening is, in effect, turning the raw material into the manufactured article at home for shipment.

Experiments have shown that sugar beets make large yields per acre and having a large sugar content can be grown profitably in every county in Montana. More attention has been paid to the subject in the Yellowstone Valley than in any other portion of the State. In Sweet Grass County, which is at present located at some distance from a beet sugar factory, the value of sugar beets for fattening cattle and sheep has been realized. Mr. G. B. Pope of Big Timber, one of the largest sheep owners in the State, has written a letter to the Big Timber Commercial Club in which he says:

"Sugar beets and sugar beet tops and pulp all make fat, either beef, mutton or pork, very rapidly—more rapidly and much cheaper than corn or any other feed that we have at the present time.

"In conversation yesterday with the field man for the beet sugar factory at Billings, a man who has had years of experience in Colorado and other

Breaking Sod.

sugar beet states, he informed me that actual experiments show that five acres of sugar beets have a feeding value of 30 acres of corn; also that the feed value of one ton of beets, with beef and mutton at the present prices, is worth $12. This seems rather large to the writer, but cut it in two and then the stockmen and ranchers of the Yellowstone Valley can make beef and mutton cheaper than can be done in any of the corn states, or any other place that I know of. Besides we have the best market for such stuff, being situated midway between the eastern and western markets, with the great home demand at hand. * * * While beets pay large profits when raised for sugar, I know they will pay much larger profits when raised for feeding hogs, sheep and cattle which do extremely well on them and fatten rapidly.

"On good soil, properly handled, they yield from 15 to 20 tons per acre, and the total cost per acre from seed time to money in bank is $35; then the tops are left, which are worth and will sell for $3 per acre. There are net profits of $50 to $75 per acre, depending upon the yield. What business pays better than this?"

The southern part of Sweet Grass County is a region of remarkable scenic beauty. The Boulder River is a beautiful stream, filled with mountain trout. Many visitors come each year to fish in the Boulder. One of the most wonderful creations of nature in the State of Montana is the Natural Bridge over the Boulder River. Beautiful cascades are to be found on many of the mountain streams.

Big Timber, the county seat, is a flourishing town, the supply point for a large region and an important shipping point for wool, sheep and cattle. It is the only town of importance in the county.

McLeod, in the fertile Boulder Valley, and Melville, in the stock country, are small villages.

TETON COUNTY.

Teton is one of the very large counties situated in the northern part of the State, south of the Canadian boundary line and east of the Continental Divide. In such a vast area differences of altitude, climate and soil are, of course, to be found. The winter climate is somewhat rigorous at times, but rarely is the cold of long duration, owing to the coming in of chinook winds and very seldom is it severe enough to interfere with out-door work. The average rainfall is about 14 inches.

The Blackfeet Indian Reservation occupies the northwest corner of the county.

In round numbers Teton County contains 4,656,000 acres of land of which 3,000,000 may be classed as agricultural. Of this amount 414,700 acres has been passed for final proof, leaving approximately 2,500,000 acres

Constructing a Railroad From Conrad to Valier.

to be homesteaded, after allowing a small amount for claims for which final proof has not been offered.

Some parts of the county are well watered with creeks and springs, but on the greater area the farmer must depend on digging wells for domestic purposes, water being found at depths varying from 8 to 100 feet.

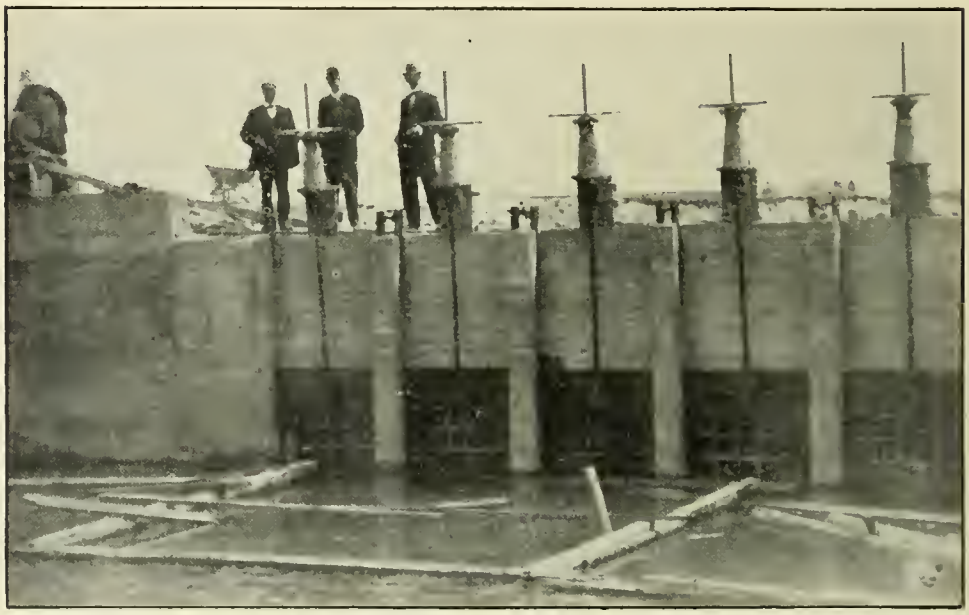
The livestock industry has been the leading one in Teton County but the development of its agricultural resources is progressing rapidly.

The Burton Bench comprising an area said to be about 87 square miles is an important farming section, and scattered through the county are many valleys containing well cultivated farms. On the Burton Bench wheat

yields on an average 40 bushels an acre and oats will average about 85 bushels. There is no record of heavier oats than those grown on this bench; they have reached a weight of 55 pounds to the bushel. Of 83 samples sent to the World's Fair the lightest was heavier than the heaviest from any other state.

On lands reclaimed by the Conrad Investment Co. many families have settled within the past few years. On raw breaking the first crops yielded 40 bushels of oats and 25 to 30 bushels of wheat to the acre. Mr. A. J. Kemper raised on newly broken ground 60 bushels of barley to the acre, and his exhibit took first prize at the Montana State Fair.

Yields on dry land farms for the past two seasons were as follows: Spring wheat, from 18 to 35 bushels; oats, from 40 to 65 bushels; fall wheat, from 25 to 40 bushels; barley, from 40 to 50 bushels. Potatoes have been a



Head Gate of the Conrad Land & Water Company.

successful and money making crop, and alfalfa has proven a success, generally cutting two crops and leaving the third for protection against the winter. Garden truck of all kinds usually grown in a temperate climate is raised with good results.

During the fall of 1908, the elevators paid 89 cents for spring wheat, 79 cents for winter wheat, 65 cents for barley, and $1.25 per hundred weight for oats. Potatoes sold for $1.25 per hundred pounds.

The fact that the dry land farmers in Teton County are prosperous and contented is the greatest recommendation for dry land farming. While the past has shown that our dry prairies are capable of producing abundant crops without irrigation, it has also shown that these may be increased from one-third to one-half more with water, and the variety of crops increased proportionately, the principal one among these being sugar beets.

These have been experimented with by farmers who irrigate their land and with the very best results, the yield being around 20 tons and the quality, as pronounced by sugar beet experts, second to none.

In the central part of Teton County there are two immense private irrigation enterprises, first, the Conrad Land and Water Power Co. who will water from their canals over 175,000 acres, 55,000 acres of this tract being patented land, and now on the market at $40 per acre, $3 per acre down, balance in 15 yearly payments, at 6 per cent interest. Their reservoir site is three miles wide and seven miles long, having a capacity of over 160,000 acre-feet. The balance of this tract is under the Carey Land Act and a part of it will be on the market about September 1, the price per acre and terms of sale being probably the same as on the patented land. The Conrad Land and Water Co has a railway under construction which will tap this body of land making it all within a reasonable distance to the string of elevators which they will build at different points along the line.

Second, the Teton Co-Operative Canal Co. with headquarters at Bynum, in Teton County, will irrigate a tract of land under the Carey Land Act of 160,000 acres. The work has been under way for two years, and at this date they expect to get a part of it on the market in 1910. The price of their holdings has not been given out, but will be along the lines of the land irrigated under this act.

There are numerous smaller projects which, when taken as a whole,

will run up to something like 25,000 acres, some of which are on the market at prices from $20 to $35 per acre.

The above figures do not touch the Government irrigation enterprises under way in different parts of the county, which are treated of in another part of this publication, and which will increase the grand total to such an extent that it will take only a glance to see the possibilities for the future of this section of the State.

The mining resources are practically untouched, although the western boundary of the county extends to the summit of the Rocky Mountains, the only development being some coal located in the western part and sold locally to the ranchers in the neighborhood.

The first elevators were built during the season of 1908, one at Collins and one at Conrad on the Great Northern Ry. Another is under construction at Conrad and the site for the third one has been secured by parties who are getting ready to build.

Following is a list taken from the assessor's report of 1908, showing the infancy of the agricultural development of the county: The valuation

A Teton County Grain Field.

of cattle was $598,752; sheep, $587,484; horses, $287,825; farm and ranch equipment, $135,000. The report also shows the tax levy for the year to have been 15 mills.

At the Montana State Fair Teton took first and second prizes on wheat, barley and rye, and first on oats and alfalfa seed. The oats are of superior quality and are shipped to the eastern market to the cereal food manufacturers, where they bring the "top" market prices.

Choteau is the county seat of Teton County. There are good schools, churches, stores, banks, professional men and all other things that go make a thriving town of about 600 population.

Good water, pure air, abundance of sunshine, cool nights, ample opportunity to make an independent livelihood, a community of people who pay their debts, enjoy their homes, contribute liberally to approved public charities

and enterprises, love their neighbors, greet one another cordially, are hospitable to strangers and believe in progress generally, specifically tells the story of Choteau and its entire surroundings. Absolutely pure drinking water is obtained from springs throughout the valley and from wells 20 feet deep at the county seat.

Conrad is the gateway to the Conrad Land & Water Co.'s irrigated lands, to the Teton Co-Operative Co.'s lands, the center of thousands and thousands of acres of dry land, and is a flourishing town of about 600 people, with two general stores, two lumber yards, a fine hardware store, bank, two butcher shops and numerous other business houses. There is one church building and two are under construction. A $12,000 concrete school house is being built, which will accommodate pupils up to and including the tenth grade. Where one elevator handled the grain in 1908 there will be three to handle the crop of 1909. It has a fine up-to-date telephone system, connecting with the Bell Co. at Great Falls, making it possible to talk to all of the principal towns of the State.

Conrad is a station on the Great Northern Ry. and the through trains which that system and the Burlington road run from Kansas City to Seattle

Digging an Irrigating Ditch.

pass through it. At this place connection is made with the Montana Western Ry., which is now being constructed to Lake Frances and which affords access to the lands reclaimed by the Conrad Investment Co.

Cutbank is on the main line of the Great Northern Ry., is a freight division point, and has a large area of farming land tributary which is practically undeveloped. Schools and churches are up-to-date, there are good business houses, a bank, and it is one of the promising towns.

Shelby is the junction of the Montana Central and the Great Northern railways, is in the center of a fine agricultural community with an immense area of land awaiting the homeseeker. School facilities are good, and there

is every reason to be proud of the progressive business people who have brought their lines up to the present standard.

Valier is the terminus of the Montana Western Ry., beautifully situated on Lake Frances and the center of the Conrad Land & Water Co.'s tract of irrigated land. The lake and incoming streams abound in trout and will afford the pleasure seeker the greatest sport, as well as the homeseeker a promising home.

Dupuyer is located in the western part of the county and within a few miles of the mountains. Its advantages in farming and stock raising are unlimited, and there are a number of mountain streams flowing through the vicinity, making irrigation by small land holders practicable, and supplying water for the great herds of cattle and sheep that are ranged in that territory.

Generally speaking, any of the above mentioned towns offer opportunities to the wide-awake business man; every one has Government land near it which may be homesteaded; and the investor who will put his money into farm lands at $12 to $15 per acre for the dry land, or $35 to $40 for irrigated land, figuring on a basis of what this land has done, will reap a rich return. Should not, then, those who are seeking investments and those seeking homes look into the advantages Teton County offers and come and see it for themselves or write for more definite and detailed information than it is possible to give within the limits of this article?

VALLEY COUNTY.

Valley County, occupying the northeast corner of the State and the gateway for those entering Montana by the Great Northern Ry., was created in 1893. It is of vast size, embracing 13,368 square miles, from which, however, must be deducted the area including the Fort Peck Indian Reservation in considering the amount of land now available for cultivation, though it is expected that this reservation will be opened in a short time. It is a region of rolling hills, fertile, wooded bottoms and vast prairies. The live stock industry was long the dominent one and is of great importance yet, but is yielding first place to agriculture. In this vast empire there were only 4,355 people in 1900 and while the population may have doubled since then the country remains practically an unoccupied prairie, inviting the homeseeker to take his choice of thousands of good locations. The movement of settlers to the unoccupied lands of this section had become so great that a United States Land Office was established at Glasgow in 1907 and nearly 160,000 acres were entered in the first seven months of its existence, and in 1908 and 1909 the business of the office has been phenomenal.

There is reason, of course, for this, or more than one reason: One is, that those who have been cultivating the soil have "made good" and their success has become known. While in so great a territory are to be found differences of climate, rainfall and soil, speaking generally—and not referring to the extensive acreage now, or soon to be irrigated—crops actually produced in the plains region of Northern Montana have demonstrated that the lands there are well adapted for growing grain and other crops and make astonishing yields when cultivated according to the methods recommended by

the Montana Agricultural Experiment Station in regions of light rainfall. The bench land has a soil of mixed clay and sand. It is very fertile, easily pulverized and has elements especially fitting it for grain growing. Farming without irrigation has proved a success in Valley County and yields obtained compare favorably with those of any state in the Middle West. Without irrigation the following yields per acre are reported for 1907 from the vicinity of Malta: Oats, 40 to 70 bushels; wheat, 30 to 50; rye, 30 to 50; flax, 15.

The lands already taken up are but an inconsiderable part of the whole. Near Culbertson are hundreds of news settlers engaged in dry farming; on the bench lands stretching north from that town to the Canadian line, sixty miles distant, are numerous new homes. In the vicinity of Dane Valley several thousand acres of grazing land have been plowed and planted to crops; and from Culbertson northward to Medicine Lake, twenty-five miles, the bench land has been settled in the past two years and now looks

The Makings of a Home in Valley County.

like one of the prosperous farming regions of the Middle Western states. Where there were not more than 40 or 50 people six years ago there are now 2.000. There is room for more. The soil is fertile, water is plentiful, wells being from 18 to 140 feet deep. There are numerous springs and water holes, small lakes and streams that run part of the year. Fuel is plentiful, beds of lignite coal being found in many localities. How rapidly the neighborhood of Culbertson is settling up is shown by the fact that between that place and the Canadian line where there were five schools five years ago there are now twenty. Three years ago all grain raised was consumed locally. In 1907 a small elevator was built and some grain shipped. In 1908 four large elevators were built and quantities of grain shipped. In 1909 the acres in grain will be 200 per cent greater than last year. There are many promising business openings at Culbertson. In the vicinities of

Mondak, Glasgow, Vandalia, Hinsdale, Saco and Malta and other places has been like development and there are like opportunities.

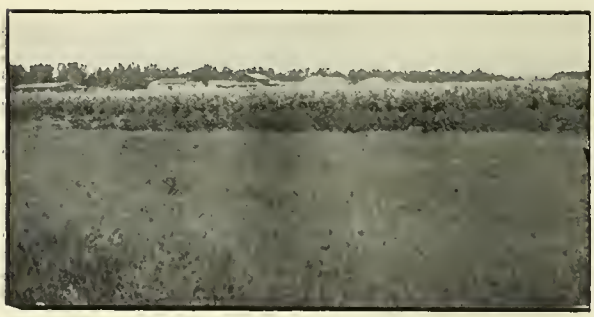
Some of the land in the smaller valleys, and in the Milk River Valley, have been irrigated by private enterprise. The great Milk River Reclamation project, which will furnish water for irrigating 150,000 acres of land in Chouteau and Valley counties, will give a great impulse to the development of agricultural resources of the region and attract to it thousands of settlers. It is treated of in another part of this publication. The Milk River country is recognized as one of the best grazing sections in the Northwest. In the valley blue joint is the native grass. Alfalfa yields six tons an acre in three cuttings. Malta is a great shipping point for sheep and wool.

Oats, Near Glasgow.

It is expected that a large beet sugar factory will soon be constructed in Chouteau County and when that factory shall be in operation the growing of sugar beets may become the most profitable industry the farmers can engage in. These beets, it is said, yield 18 tons an acre, with a sugar content of 18¼ per cent, and when sold at $5 there should be a profit of $40 an acre in raising them.

Parts of Valley County are below 2,000 feet in altitude. The normal rainfall is about 14 inches, most of it coming when needed for growing crops. There is an unusual number of clear, sunshiny days, and the chinook winds temper the cold of winter.

Glasgow, the county seat, is a city of 2,000 inhabitants and the location of the United States Land Office where official maps of public lands may be consulted and reliable information concerning them obtained for the asking. It is a division point on the Great Northern Ry. where all passenger and freight trains stop, and a large railroad pay-roll contributes to the prosperity of the town. There is a local and long distance telephone system, the city owns the electric light plant and has under construction water works and a sewerage system to cost $50,000. Glasgow is proud of its schools. The high school cost $35,000 and is equipped with all modern school facilities, including a laboratory for scientific study, and the graded schools are first-class. There



A Valley County Corn Field.

are Catholic, Congregational, Episcopal and Methodist churches, a Carnegie library, many secret societies and fraternal organizations. Business houses carry large stocks of goods, hotels are numerous and well conducted, and there is the Glasgow Commercial Club which invites calls and inquiries. "But best of all," in the opinion of a Glasgow man, "is the opportunity this

"Located."

county offers the homeseeker. Any man or woman of legal age who has not used his or her land rights can file on 320 acres of the best land the sun shines on for 10 cents an acre and there are thousands of acres open to entry."

Valley County appeals to farmers who have boys or girls at home to think of their future—appeals to the boys and girls themselves and asks them to consider the opportunities this county offers for securing valuable land free, and urges them to come and to come quickly, because land near the railroad is being rapidly taken—and get 320 acres "that will raise anything from 35 bushels of wheat to a mortgage."

YELLOWSTONE COUNTY.

The visitor who steps off the train at Billings finds himself almost at once becoming imbued with the spirit of energy, progress and optimism which pervades that busy and growing town, and he will soon learn that the confidence in the continued and increasing growth of the city and country tributary to it which he hears proclaimed on all sides has firm foundations upon which to rest. For years the residents of Yellowstone County have been keenly alive to the many advantages this section of Montana possesses and have shown most commendable energy in developing their resources and in making them known to others. They have worked themselves and have put their money to work at home and have reaped golden rewards.

The county is a large one, extending almost from the Wyoming line on the south to the Musselshell River on the north, with eastern and western boundaries widely separated. The Yellowstone River flows through the county from west to east and gives it its name. The Northern Pacific Ry. follows the stream throughout the county and two branches, one to Red Lodge and the other to Bridger, in the Clark's Fork Valley, in Carbon County, issue from the main line at Laurel. From the south comes the Burlington Railroad, terminating at Billings, with branch line to Cody and Kirby, Wyoming. The Chicago, Milwaukee & St. Paul runs along the banks of the Musselshell River supplying transportation facilities to the northern part of the county. The Great Northern Ry., by the Billings & Northern division, penetrates the county from north to south in its eastern part. Other railroads are expected to build into this fertile and productive territory.

Yellowstone Also Raises Corn.

And Apples Too.

So far as known the mineral wealth of Yellowstone County is confined to building stone and coal. There are large areas of coal land and large mines have recently been opened up at Roundup near the Fergus County line.

The stock raising industry was in early days the chief industry and is a very important one yet. Great numbers of horses, cattle and sheep are raised. Billings is one of the great primary wool markets of the United States. The transformation that is going on throughout Montana—the conversion of grazing lands into farming lands—has already taken place in

a marked degree in this county. A number of the large stock ranches have already been divided into small tracts for farmers, and as the open range has steadily diminished the stock business has been forced back to the less valuable lands and to those more fitted for grazing than for farming.

Many irrigation ditches bring water to the river bottom and bench lands of the county, and no greater crops of all kinds are grown anywhere, while the high lands produce wonderful crops of wheat, alfalfa and other produce without irrigation.

The Big Ditch was the first large irrigation ditch to be built in the Yellowstone Valley and irrigates more than 25,000 acres immediately west of the city of Billings, while the canal carried above the city and through an 1,847-foot tunnel in the big rim-rock north of the city, and over a very long flume standing 70 feet above the creek, irrigates 40,000 acres of bench lands northeast of Billings, and thousands of acres are covered by private ditches. The first Government irrigation project for reclamation of Montana lands which was completed is situated 13 miles east of Billings, is known as the Huntley project and comprises over 35,000 acres. More than half of the land has already been taken up by actual settlers under the homestead laws, and hundreds of new homes have been built in the past year.

Irrigating Sugar Beets.

Within a radius of fifty miles of Billings there are said to be 500,000 acres of land under irrigation and every acre producing a crop of some kind. Within the same radius are thousands of acres more which are to be reclaimed by projects now under way or projected. Within a circle of 125 miles in diameter, with Billings as the center, are 1,500,000 acres of fertile lands susceptible of irrigation and there is water to reclaim them.

Alfalfa yields wonderful crops and is of a superior quality. It is always in demand and is a great money-maker for its growers. Five tons, which sell from $5 to $8 per ton as hay, can be raised per acre. Thousands of sheep are brought into the county and fattened on alfalfa, sometimes supplemented by a grain ration.

Grain of all kinds grows in profusion and of superior quality. Wheat produces 35 to 50 bushels; oats, 50 to 100 bushels; barley, 35 to 70 bushels; potatoes, 150 to 600 bushels; sugar beets, 12 to 20 tons; alfalfa, 5 to 7 tons; corn, 25 to 75 bushels, while all small fruits, apples, melons, tomatoes and garden truck produce in abundance. Any crop which may be successfully grown in the same latitude elsewhere may be grown and the yield is usually greater than in other places.

Billings has the only sugar factory in Montana. It was completed in 1906 at a cost of $1,250,000 and made its initial run, consuming the beets raised on 7,000 acres of land. The acreage has been increased this year to the extent of 3,000 acres, making 10,000 acres of beets harvested this year. Both soil and climate are peculiarly well adapted to beet culture, the amount of saccharine matter carried in the beets being very high. The factory pays $5 a ton for the beets delivered at the receiving station. Because of the railroad facilities afforded beets are a profitable crop when grown at as far a distance as 100 miles. Sugar beets grown in the Yellowstone Valley produce from $65 to $100 an acre at a cost of $40 per acre. During the present season the factory will run 120 days, grinding over 115,000 tons of beets, for which the farmers of this valley will receive more than $600,000, making more than $1,000,000 paid out by the factory here when the labor is taken into consideration.

Shipping Sugar Beets to billings Sugar Refinery.

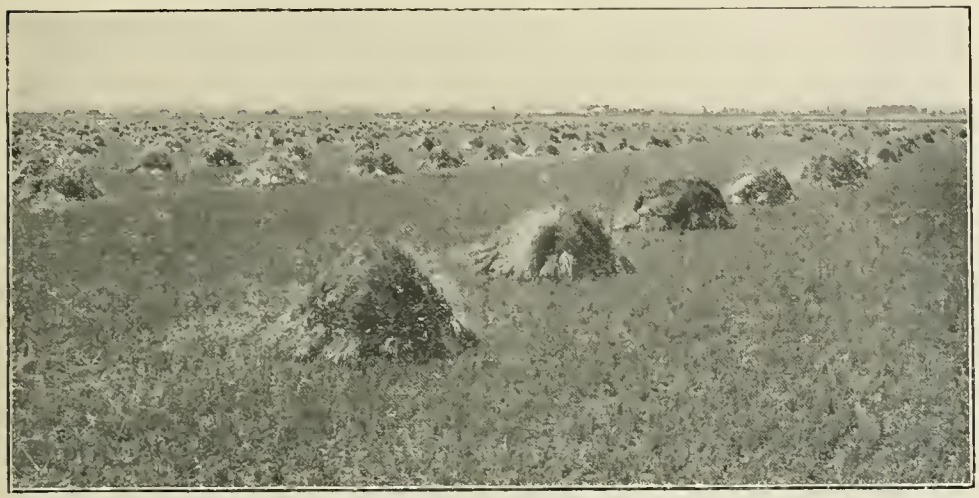
In addition to the irrigated land and that susceptible of being irrigated, there is a vast area capable of cultivation under the dry land farming system. This method of agriculture may be said to have passed the experimental stage, as several thousand acres are now being cultivated in this manner, and with uniformly good results. Much of this land is subject to entry under the homestead law and may be had free by residing upon it the required length of time, five years, and making the necessary improvements.

On the dry farm of Dr. W. X. Sudduth at Broadview 250 acres of Turkey Red wheat yielded 30 bushels an acre, a bushel weighing 59½ pounds. Flax yielded 15 bushels an acre. Mr. W. B. George also had remarkable success in growing wheat, getting 30 to 40 bushels an acre—the bushels weighing 63 pounds.

The Yellowstone Experiment Farm is located 25 miles northwest of Billings in the Lake Basin Country. The soil is a medium clay. "The results from this farm," says Bulletin 74 of the Montana Experiment Station, page 76, "will be of interest to land owners and to others throughout most of the dry farming area of the central part of the State. The yields bespeak a very profitable utilization of these lands in the very near future."

That dry farming has made remarkable success in Yellowstone County was proven in an impressive manner at the Dry Farming Congress held at Cheyenne, Wyoming, in 1908, when the following awards were made to exhibitors from this county, who met in competition exhibitors from many

states, viz: W. B. George, silver cup, for the best 25 pounds of wheat; Miss Mabel Sudduth, first prize for the best display made by a woman homesteader, first for sheaf flax, second for display of alfalfa and third for hulless barley; Dr. Sudduth took second prize for wheat, second for flax, second for field peas, third for Durum wheat and for field beans. Dr. Sudduth and Miss Sudduth, respectively, took the first and second prizes for displays of flax. In the sweepstakes class there were five first prizes and of these Billings took three, the Chamber of Commerce display taking first



The Field of Turkey Red Wheat That Won the Silver Loving Cup at the Dry Farming Congress, Cheyenne, 1908, Canada and the Entire West and South Being in Competition.

for potatoes and for grain, forage and root crops. C. I. Gardner won first prize for native grasses and cultivated feed crops.

In recognition of the present and future importance of Montana as a dry farming state and of those who have made scientific study and practical and successful application of this new science which opens up a new era in the agricultural development of the United States, Montana was honored by the selection of its Governor, Hon. Edwin L. Norris, as President of the Congress, and of Billings as the next place of meeting. The fourth annual session of the Dry Farming Congress and the Second International Dry Farming Exposition will be held at Billings, October 26, 27 and 28, 1909.

Columbus, Park City and Laurel, all on the Yellowstone River, are flourishing towns in the western part of the county. Columbus is the trading point for the Stillwater Valley and near it are the quarries which supplied the stone of which the Capitol of Montana is built. Laurel is an important railroad junction point.

Billings is the metropolis and county seat, having a population estimated at 12,000 to 16,0000. Here is located the United States local land office for this district. It is a great railroad center and many miles of public highway lead to it by a "down hill pull." One has not seen Montana until he has seen Billings and the famous valley of the Yellowstone. Nowhere in the country can be seen greater evidence of rapidly increasing prosperity than in Billings which aspires to become to Montana what Denver is to Colorado.

The magnificent beet sugar factory, packing houses, brick and tile manufacturing plants, flouring and cereal mills, mammoth grain elevators, large creamery, butter and cold storage plants; iron foundries, broom and cigar factories and other like concerns consume the products and give employment to many working men, and articles "Made In Billings" have a preference over all others. A town of such importance is, of course, equipped with all the modern conveniences that may be expected to be found in thoroughly up-to-date cities.

In referring to the substantial growth of Billings and the Yellowstone Valley much credit should be given to the Chamber of Commerce which has taken the lead in all public affairs and has had much to do in creating the "Billings Spirit" which is recognized throughout the country and makes every citizen a "Billings Booster" wherever he goes. Concerted action by energetic and able citizens all unitedly "pulling" to advance Billings has accomplished wonders. When they want a thing they go after it and get it

A View in the Business Portion of Billings.

and do not hesitate to put their hands in their own pockets to pay the costs. No city surpasses Billings in its spirit of progressiveness, as shown by its public buildings, business houses, public improvements, schools, churches and residences. The Odd Fellows completed a substantial three-story business block and lodge rooms last fall, while the Elks and Masons are now building massive three-story temples costing $65,000 and $100,000, respectively. Costly church buildings are numerous.

Billings is a city of refined, cultured, moral and progressive people; a united, helpful people, always ready to stand together in promoting the welfare of their home town. Already an important trading and railroad center in the midst of a fertile country whose development has scarcely begun, possessing an extremely favorable location and with an uncommonly progressive body of citizens, the growth of Billings in population, wealth and importance seems to be assured. The Yellowstone Valley and Billings extend a welcome to all comers and say: "Come with us; be healthy, wealthy and happy. No other place is any better."

INDEX

Page

Acres—Number of in State 39
Agricultural and Mechanic Arts—College of 64
Altitudes—
Average 3
Compared with other States 3
Of county seats 4, 5, 6
Of weather stations 12
Anaconda—The county seat of Deer Lodge County 115
Apples—Production of in United States, 1895 to 1907 70
Area 2, 39
Assessed valuation of property 74
Barley 16, 18
Beaverhead County—Description of 78
Beet sugar factory 72, 210
Big Timber—The county seat of Sweet Grass County 199
Big Timber irrigation project—The 25, 197
Billings—The county seat of Yellowstone County 212
Billings Land & Irrigation Co.'s irrigation project—The 25
Blackfeet reclamation project—The 26
Boulder—The county seat of Jefferson County 143
Bozeman—The county seat of Gallatin County 136
Broadwater County—Description of 84
Building of the State—The 61
Butte—The county seat of Silver Bow County 190
Production of the mines of 193
Carbon County—Description of 88
Carey Land Act projects 24, 25
Cascade County—Description of 92
Results at experiment farm in 31
Cement factory 68
Choteau—The county seat of Teton County 202
Chouteau County—Description of 100
Results at experiment farm in 32
Churches 64
Climate 10
Climatological data 12
Coal area—The 66
Coal mines—Output of the 67
Conrad Irrigation Project—The 25
Copper—Production of 66
Counties—Description of 78
List of 75
County seats 75
Crops—
Varieties grown 13
Quality of products 14
Awards for, in competition with the world 14
At the Chicago World's Fair 14
At the St. Louis Exposition 15
At the Portland Exposition 15, 16
At the Dry Farming Congress 16, 211
At the National Irrigation Congress 16
At the Spokane Apple Show 16
Quantity of yield and farm value per acre in Montana and in the United States: 17
Wheat 18
Oats 18
Barley 18
Potatoes 18
Rye 19
Some striking contrasts 19, 20
Yields for 1908 105
Custer County—Description of 72
Dairying 110
Dawson County—Description of 83
Results at experiment farm in 33
Deaf and Blind School—The 64
Dearborn irrigation project—The 25
Deer Lodge County—Description of 115
Deer Lodge—The county seat of Powell County 173
Dillon—The county seat of Beaverhead County 83
Dry Farming Congress 216
Dry Land Farming 29
State experiment farms 30
Cascade County farm—Results at 31
Chouteau County farm—Results at 32
Dawson County farm—Results at 33
Rosebud County farm—Results at 34
Yellowstone County farm—Results at 35
Average results from all experiment farms 36
Precipitation records at experiment farms 37
How to succeed in 38

Page

Experiment farms 30
Fairs: State and county—Dates of in 1909 216
Fergus County—Description of 119
  Experiment farm in 31
Flathead County—Description of 125
Flathead reclamation project—The 27
Flour mills 68
Forest reserves—Acres in 39
Forsyth—The county seat of Rosebud County 184
Fort Benton—The county seat of Chouteau County 104
Fort Peck reclamation project—The 27
Foundry and machine shops 68
Fruit production—Insufficient for home demand 70
Gallatin County—Description of 132
Granite County—Description of 139
Geography 2
  Of northern section 6
  Of northwestern section 4
  Of southern section 5
  Of southeastern section 5
Glasgow—The county seat of Valley County 206
Glendive—The county seat of Dawson County 113
Gold—Production of 66
Government lands 42
Government reclamation projects 26
Great Falls—The county seat of Cascade County 98
Growth of population 73
Growth of property 74
Hamilton—The county seat of Ravalli County 181
Helena—The capital of Montana and county seat of Lewis and Clark County 145
History of Montana—Brief reference to 61
Homestead laws 43
Home market for farm products 60
Horticulture 68
Hot springs 10, 144, 146, 161, 163, 189
Huntley reclamation project—The 27
Irrigation and its development 24
Irrigated and non-irrigated lands 22
  Differences in systems of cultivation 22, 23
Jefferson County—Description of 141
Kalispell—The county seat of Flathead County 132
Lands—
  Character of 41
  Enlarged homestead 43
  Government 42
  Homesteads 43
  State 42
Land offices—List of 42
Lead—Production of 66
Lewis and Clark County—Description of 144
Lewistown—The county seat of Fergus County 123
Libby—The county seat of Lincoln County 154
Lincoln County—Description of 151
Live stock industry—The 58
Live stock—Prizes won by Montana 170
Livingston—The county seat of Park County 172
Lower Yellowstone reclamation project—The 28
Lumber—Manufactures of 67
Madison County—Description of 154
Malt liquors—Manufactures of 68
Manufacturing industry—The 67
Meagher County—Description of 159
Medals awarded to Montana exhibitors—List of 14, 15, 16
Miles City—The county seat of Custer County 109
Milk River reclamation project—The 28
Mineralized area—The 59
Minerals—Production of from 1862 to 1907 66
Mining opportunities 59
Missoula County—Description of 162
Missoula—The county seat of Missoula County 168
Montana Agricultural College 64
Montana Agricultural Experiment Station 136
Montana—Reason name was adopted 2
Mountain systems 2, 3, 40
Normal School—The 64
Oats—Yield of 18
  Yield of—A record in quantity 181
  Yield of—A record in weight 200
Park County—Description of 169
Philipsburg—The county seat of Granite County 141
Population by counties in 1900 75
  By decades 73
  Forecast of possibilities 75
Potatoes—Yield of 18
Powell County—Description of 173
Precipitation—Records of 12, 37
Printing establishments 68
Railroads 63
Railroad mileage 64

Page
Rainfall 12, 37
Ravalli County—Description of 178
Reclamation projects—Government 26
Blackfeet project—The 26
Flathead project—The 27
Fort Peck project—The 27
Huntley project—The 27
Lower Yellowstone project—The 28
Milk River project—The 28
St. Mary project—The 28
Sun River project—The 28
Reclamation projects—State 24
Red Lodge—The county seat of Carbon County 91
Reform School—The 64
River systems—The 8
Rosebud County—Description of 182
Results at experiment farm in 34
Rye—Yield of 18
St. Mary reclamation project—The 28
Sanders County—Description of 185
Scenery 75
Schools 64
School of Mines 64
Silver Bow County—Description of 190
Silver—Production of 66
Size, contrasted with other states and countries 39
Soil 13, 23
Soldiers' Home—The 64
State Board of Horticulture 68
State experiment farms 30
State institutions 64
State Lands 42
State Orphans' Home 64, 158
State reclamation projects under the Carey Act 24
Sugar beets 72
Value as feed for live stock 198
Sunshine—Quantity of 12
Sun River reclamation project—The 28
Sweet Grass County—Description of 196
Teton County—Description of 199
Thermal springs 40, 144, 146, 161, 169, 189
Thompson—The county seat of Sanders County 188
Timber lands—Estimated acreage of 39
Townsend—The county seat of Broadwater County 88
Treasure vault of the Treasure State—The mountain region the 40
United States land offices—List of 42
University of Montana 64
Valley County—Description of 204
Virginia City—The county seat of Madison County 158
Water power 40
Wealth production 64
Wheat—Yield of 17
White Sulphur Springs—The county seat of Meagher County 161
Yellowstone County—Description of 207
Results at experiment farm in 35

SEE MONTANA!

Come and See for Yourself the Products of the Soil, the Live Stock and the Exhibit of the Minerals at the Montana State Fair at Helena, September 27 to October 2, 1909—And At These Other Fairs:

LIST OF COUNTY FAIRS—1909.

County.	Town at Which Held.	Name of Fair.	Dates.
Beaverhead	Dillon	Beaverhead County Fair Association	Aug. 31, Sept. 1 to 3, inclusive.
Carbon.....	Red Lodge.....	Carbon County Fair.....	Oct 11 to 13 inclusive.
Cascade	Great Falls ...	Northern Montana Fair Association	Sept. 6 to 10, inclusive.
Custer	Miles City	Custer County Fair	Sept. 1 to 3, inclusive.
Dawson.....	Glendive	Dawson County Fair	Sept. 7 to 9, inclusive.
Deer Lodge....	Anaconda	Deer Lodge County Fair Association	Sept. 22 to 25, inclusive.
Fergus	Lewistown	Fergus County Agricultural, Mineral and Stock Association	Sept. 1 to 3, inclusive.
Flathead	Kalispell	Flathead County Fair	Oct. 6 to 9, inclusive.
Gallatin	Bozeman	Inter-State Fair Association ...	Sept. 13 to 18, inclusive.
Madison.....	Twin Bridges...	Madison County Fair.....	Sept. 16 to 18, inclusive.
Missoula	Missoula	Missoula County Fair	Oct. 18 to 22, inclusive.
Sweet Grass ...	Big Timber ...	Sweet Grass County Fair Association	Sept. 21 to 24, inclusive.

ATTEND THE DRY FARMING CONGRESS!

And Examine the Exhibits at the Second International Dry Farming Exposition to be Held at Billings, October 26, 27 and 28, 1909.